SERVICE MANUAL

REVISION 0 JUNE 1994

Canon
FY8-13D2-000

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CANON NP6016 REV.0 JUNE 1994 PRINTED IN JAPAN

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I. FEATURES

The copier becomes ready to make copies as soon as it is turned on. When fitted with options, it provides a maximum of four paper sources.

1. ***Multiple front loading and multifeeder for space saving.***
   - The cassette may be slid out to the front for paper supply work.
   - With the adjustable cassette and the multifeeder, various types of paper may be used.
2. **Office amenities and ecology.**
   - The copier is equipped with a heating mechanism, which makes the copier ready for copying work at power-on without wait time.
   - The copier is designed compact, enabling effective use of office space.
   - The use of roller charging has proved to reduce the generation of ozone significantly. (1/100 to 1/1000 compared to other Canon copiers)
   - As the pick-up mechanism, center-reference is adopted in consideration of the use of recycled paper.
   - A significant number of parts are made of plastic in an effort to promote recycling.
   - The copier is designed as a clamshell type to facilitate clearing of jammed paper.
3. **Dependable high image quality.**
   - The new HQ (high-quality) toner ensures faithful reproduction of solid black, text, and photos.
   - In addition to Canon's own single-component toner projection development method, the use of auto image control (AIC) ensures stable reproduction of images.
4. **Practical basic features.**
   - As many as 16 copies (A4/Letter, horizontal) may be made per minute.
   - Copies may be as large as A3/Ledger or as small as A5/STMT, accommodating postcards.
   - The AE mechanism promises enhanced reproduction of newspapers or diazo originals.
   - Using page separation mode, a book may be copied with its left and right pages processed separately.
   - Copies may be made in zoom between 49% and 204%.
   - The zoom fine-adjustment mechanism ensures better control for faithful reproduction of originals.
   - The auto power-off mechanism helps further saving of energy.
   - The interrupt mechanism enables cutting in on a continuous copying session.

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II. SPECIFICATIONS

A. Copier

1. Type

Item	Description
Body	Desk top
Copyboard	Fixed
Light source	Fluorescent lamp
Lens	Zoom
Photosensitive medium	OPC

2. System

Item		Description
Copying		Indirect electrophotographic
Charging		Roller (direct charging)
Exposure		Slit (moving light source)
Copy density adjustment		Automatic (AE) or manual
Development		Dry (toner projection)
Pick-up	Auto	1 cassette
	Manual	Multifeeder
Transfer		Roller
Separation		Curvature + static eliminator
Cleaning		Cleaning blade
Fixing		Fixing (by plane-shaped heater; 1100 W max.)

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3. Features

Item			Specification
Original type			Sheet, book, 3-D object (2 kg/2.204 lb. max.)
Maximum original size			A3 (297 × 420 mm)/LDG (11" × 17") Center reference
Reproduction ratio			Direct, 4R4E, 4R3E, or 2R2E (Table 1-1) Zoom 49% to 204%
Wait time			0 sec
First copy			7.4 sec or less (9.8 sec or less at power-on; A4, Direct, non-AE, from cassette)
Continuous copying			100 (max.; upper limit may be varied in service mode)
Copying speed			See Table 1-2.
Copy size			Cassette: A3/11" × 17" to A5/STMT 3.94" × 5.88" Manual: A3/11" × 17" to postcard (vertical)
Copy paper	Cassette		Plain paper (64 to 80 g/m²), tracing paper (SM1), colored paper, recycled paper (64 to 80 g/m²), ecology paper (80 g/m²)
	Manual		Plain paper (64 to 80 g/m²), tracing paper (SM1, GNT80), colored paper, recycled paper (64 to 80 g/m²), ecology paper (80 g/m²), transparency, postcard, label sheet
	Two-sided/overlay	Manual	Plain paper (64 to 80 g/m²), colored paper, postcard, recycled paper (64 to 880 g/m²), ecology paper (80 g/m²)
Cassette			34 mm deep (approx.; about 250 sheets of 80 g/,m² paper), clawless, front loading (center reference)
Multifeeder			5 mm high (max.; about 50 sheets of 80 g/m²), clawless (center reference)
Copy tray			100 sheets (approx.; A3 size, 80 g/m²)
Non-image width		One-sided	2.0 ±1.0 mm (leading edge), 2.5 ±1.5 mm (left/right, trailing edge)
		Multi manual	2.0 ±1.0 mm (leading edge), 3.5 ±1.5 mm (left/right, trailing edge)
Auto clear			Available (2 min standard; may be varied between 1 to 9 min in 1-minute increments; may be disabled)
Auto power-off			Available (5 min standard; may be varied in user mode to 2, 5, 10, 15, 30, 60, 120 min)
Option			Cassette Feeding Module-B1, Cassette Feeding Module-A1, Control Card IV N, Stapler Sorter B2/D1, MS-B1 ADF-E1

Caution:
1. Use Canon-recommended paper.
2. Remove curling before feeding for a second time.
3. Fan out the transparencies before setting them on the multifeeder to prevent adhesion.

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4. Others

Item		Specifications	
Operating environment	Temperature	7.5°C to 32.5°C	
	Humidity	5% to 85%	
	Atmospheric pressure	810.6 hPa to 1013.3 hPa (0.8 to 1 atm)	
Power supply		Serial numbers	
	115 V	NCUxxxxx	
	230 V (50Hz/60Hz)	PAWxxxxx	
	230 V (50Hz)	UALxxxxx	
Power consumption	Maximum	1.5 kW or less	
	Standby	97.2 kJ per hr (27 wh average; reference only)	
	Continuous	2088 kJ (580 wh average; reference only)	
Noise	Copying	49.7 dB or less (1 m front)	Sound power level by ISO method
	Standby	—	
Ozone (average over 8 hr)		0.01 ppm or less (average); 0.02 ppm or less (max.)	
Dimensions	Width	585 mm	
	Depth	622 mm	
	Height	345 mm	
Weight		48 kg (approx.)	
Consumables	Copy paper	Keep wrapped to protect against humidity.	
	Cartridge	Avoid direct rays of the sun; keep at 40°C, 85%.	

Reproduction ratio	DIRECT	1: 1 (±0.5%)		
		100V/115V/230V	115V	230V
	REDUCE I	1: 0.500	1: 0.500	1: 0.500
	REDUCE II	1: 0.707	1: 0.647	1: 0.707
	REDUCE III	1: 0.816	1: 0.733	
	REDUCE IV	1: 0.865	1: 0.786	
	ENLARGE I	1: 1.154	1: 1.214	1: 1.414
	ENLARGE II	1: 1.224	1: 1.294	1: 2.000
	ENLARGE III	1: 1.414	1: 2.000	
	ENLARGE IV	1: 2.000		
	ZOOM	49% to 204 % (1% increments)		

Table 1-201 Standard Reproduction Ratios

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Reproduction ratio		Copy size	Q'ty	
			100V	230V
DIRECT	1: 1 (±0.5%)	A3 (297 × 420)	9	9
		A4 (210 × 297)	16	16
		A5 (148 × 210)	17	16
		B4 (257 × 364)	11	11
		B5 (182 × 257)	17	18
		A4R (297 × 210)	13	13
		A5R (210 × 148)	17	16
		B5R (257 × 182)	14	14
REDUCE	1: 0.500 (+1.0%)	A3 → A5R	13	13
	1: 0.707 (+1.0%)	A3 → A5R	11	11
		B4 → B5R	13	13
	1: 0.816 (+1.0%)	B4 → A4R	12	12
	1: 0.865 (+1.0%)	A3 → B4	10	10
		A4 → B5	17	17
ENLARGE	1: 2.000 (+1.0%)	A5R → A3	11	11
	1: 1.414 (+1.0%)	A4R → A3	10	10
		B5R → B4	11	11
	1: 1.224 (+1.0%)	A4R → B4	11	11
	1: 1.154 (+1.0%)	B4 → A3	10	10
		B5 → A4	17	17

Table 1-202ⓐ Copying Speed (100/230V)

Reproduction ratio		Copy size	Q'ty
DIRECT	1: 1 (±0.5%)	LTR	16
		11 × 17	9
		LGL	11
		LTRR	13
		STMT/STMTR	17
REDUCE	1: 0.786	LGL → LTRR	12
	1: 0.733	11 × 17 → LGL	11
		11 × 17 → LTRR	12
	1: 0.647	11 × 17 → LTRR	12
ENLARGE	1: 0.500	11 × 17 → STMTR	13
	1: 2.000	STMTR → 11 × 17	10
	1: 1.294	LTRR → 11 × 17	10
	1: 1.214	11 × 17 → STMTR	10

Table 1-202ⓑ Copying Speed (115V)

Specifications subject to change without notice.

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B. Cassette Feeding Module-B1/Cassette Feeding Module-A1

Copy paper	As per copier.
Cassette	As per copier.
Power supply	34 VDC, 24V, 5V (from copier)
Dimensions (mm)	Cassette Feeding Module-B1: 585W × 622D × 105H Cassette Feeding Module-A1: 585W × 622D × 210H
Weight	Cassette Feeding Module-B1: 5kg Cassette Feeding Module-A1: 10kg

Table 1-203

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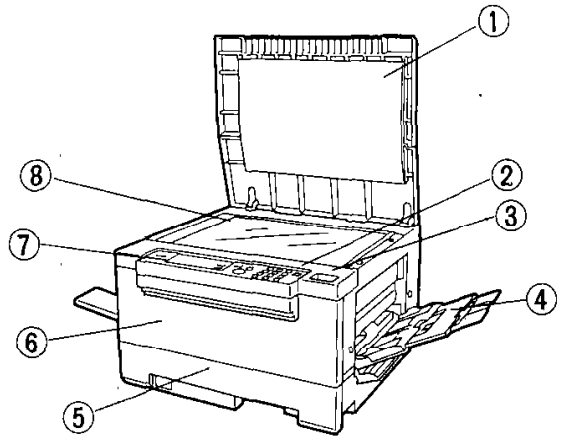
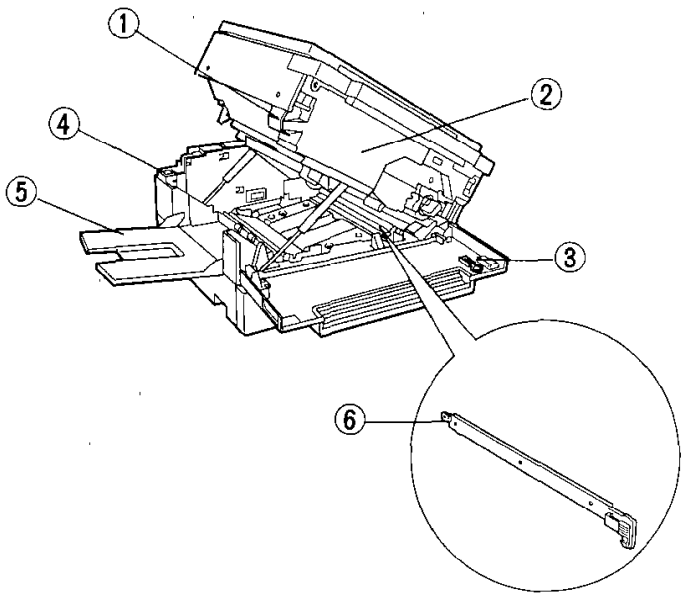
III. NAMES OF PARTS

A. Exterior View



① Copyboard cover
② Power switch
③ Clip tray
④ Multifeeder
⑤ Cassette
⑥ Front door
⑦ Control panel
⑧ Copyboard glass

Figure 1-301



① Open/close lever
② Copy density correction knob
③ Static eliminator cleaner
④ Heater switch
⑤ Copy tray
⑥ Static eliminator

Figure 1-302

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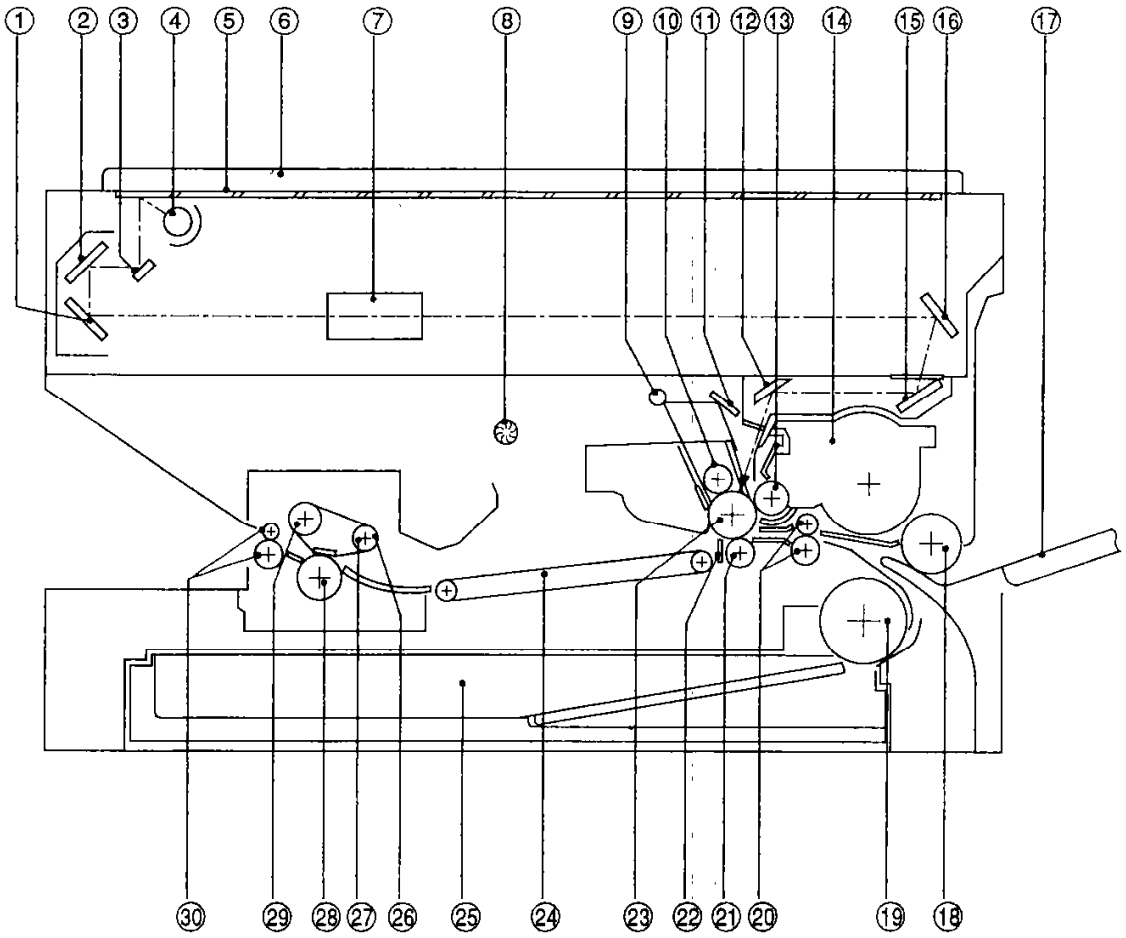
B. Cross Section

1. Body



① No. 3 mirror
② No. 2 mirror
③ No. 1 mirror
④ Scanning lamp
⑤ Copyboard glass
⑥ Copyboard cover
⑦ Lens
⑧ Exhaust fan
⑨ Pre-exposure lamp
⑩ Primary charging roller
⑪ Reflecting plate
⑫ No. 6 mirror
⑬ Developing cylinder
⑭ Developing assembly
⑮ No. 5 mirror
⑯ No. 4 mirror
⑰ Multifeeder tray
⑱ Multifeeder pick-up roller
⑲ Cassette pick-up roller
⑳ Registration roller
㉑ Transfer roller
㉒ Separation static eliminator
㉓ Photosensitive drum
㉔ Feeding assembly
㉕ Cassette
㉖ Fixing film
㉗ Film tension roller
㉘ Film pressure roller
㉙ Film drive roller
㉚ Delivery roller

Figure 1-303

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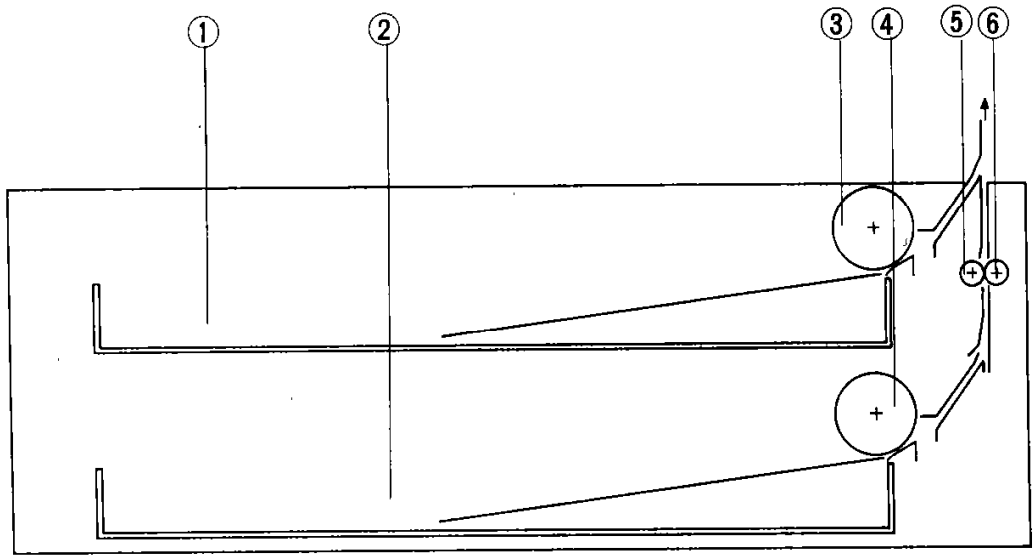
2. Cassette Feeding Module-A1



① Cassette 2
② Cassette 3
③ Cassette 2 pick-up roller
④ Cassette 3 pick-up roller
⑤ Drive roller
⑥ Feeding roller

Figure 1-304

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IV. OPERATION

A. Control Panel

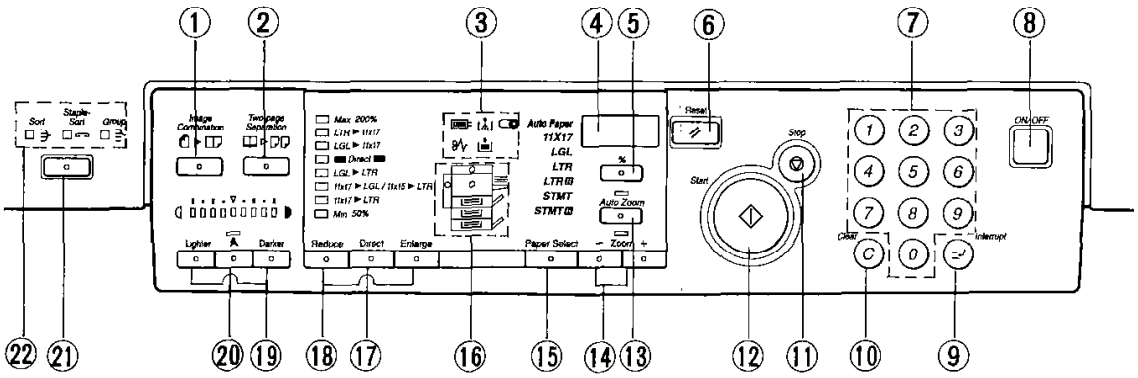

Figure 1-401

Ref.	Key	Description	Remarks
①	Image Compose key	Press to set/reset image composition mode.	Only when an ADF (option) is installed.
②	Page Separate key	Press to set/reset page separation mode.	
③	Warning indicator	Flashes when the control card is not properly inserted, when the toner cartridge must be replaced, when a jam has occurred, or when paper has run out. Further, flashes/remains on to indicate need for drum cartridge replacement. (North America only)	
④	Display	Indicates the copy count/reproduction ratio, mode settings (3 digits).	
⑤	% key	Press to display the specified reproduction ratio.	
⑥	Reset key	Press to return to standard copy mode.	Standard mode: reproduction ratio ..... 100% copy count ..... 1 paper source ..... cassette density adjustment ..... AE As high as '100' may be set.
⑦	Keypad	Use it to specify a copy count or enter mode settings.	
⑧	Power switch	Use it to turn on and off the power.	
⑨	Interrupt key	Press to interrupt an ongoing copying session.	
⑩	Clear key	Press to clear a copy count or mode settings.	
⑪	Stop key	Press to stop copying operation.	
⑫	Start key	Press to start copying operation.	
⑬	Auto Ratio key	Press it to set/reset auto ratio mode.	Only when an ADF (option) is installed.
⑭	Zoom key	Press to set a reproduction ratio.	May be set between 49% and 204% in 1% increments.
⑮	Paper Select key	Press to select a cassette or multifeeder.	
⑯	Cassette/Jam indicator	Turns on to indicate the selected cassette/multifeeder; flashes when a jam occurs; remains on when the sorter and right door must be checked or, when the original jams.	
⑰	Direct key	Press to return to Direct (100%).	
⑱	Reduce/Enlarge key	Press to select Reduce/Enlarge (standard reproduction ratio).	
⑲	Copy density key	Use it to adjust the density of copies manually.	
⑳	AE key	Press to set/re-set AE mode or user mode.	
㉑	Sorter key	Press it to select/reset sort, staple/sort, or group mode.	Only when an sorter (option) is installed.
㉒	Sorter indicator	Turns on to indicate selected delivery mode.	

Table 1-401

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B. Making Copies

1) Turn on the power.
   - The wait time is about 0 sec.
2) Lift the copyboard cover, and place the original face down aligned with the size index.
   - Place the original so that its center is aligned to → shown in Figure 1-402; then, close the copyboard cover.

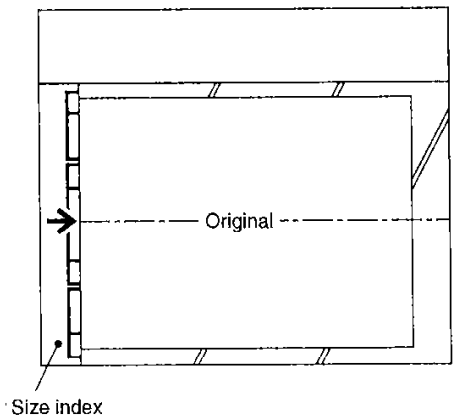

Figure 1-402

3) Select a reproduction ratio.
   ① Reduce, Direct, and Enlarge Keys
   Use it to make a standard-sized copy of a standard-sized original.
   ② Zoom Key
   Use it to set a reproduction ratio between 49% and 204% in 1% increments.
4) To specify a paper size, press the Paper key.
   ① If appropriate paper is not in the cassette, place paper in the multifeeder.
5) Specify the copy density.
   ① To make copies in AE mode, press the AE key, and check that the AE indicator has turned on.
   ② To obtain darker copies manually, press the Darker key to move the index to the right; to obtain lighter copies, on the other hand, press the Lighter key to move the index to the left.

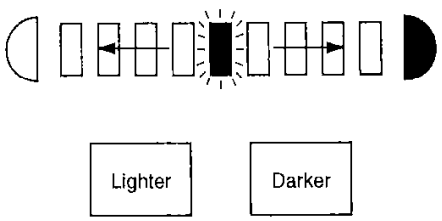

Figure 1-403

Note:
Adjust the density manually if the original is a transparency or others that have a high transparency.

6) Specify the number of copies to make (1 through 100) using the keypad, and check the copy count indicator.
   ① If the keypad does not accept input or if you made a mistake, press the Clear key Ⓒ to try once again.
7) Press the Copy Start key ◇ .
   - If the intensity of the lamp is below the specified value, wait until it reaches the specified value.
   ① As many copies as specified will be made.
   - If an ADF is installed, the originals set on the original tray are auto matically picked up for copying.
   ② You cannot change the current copy mode between when the copying operation has started and when the last copy has been made by pressing keys other than the Stop, Reset, and Copy Density keys.
   ③ You may switch from automatic density adjustment to manual density adjustment between when copying operation has started and when the last copy has been made; however, you cannot switch from manual density adjustment to automatic density adjustment.

Reference:
If copies made in AE mode are too dark or too light, press the Copy Density key while copies are being made, using copies made in AE as a reference.

   ④ To stop continuous copying operation, press the Stop key or Reset key; the operation stops after finishing the ongoing copying sequence.
   ⑤ When all copies have been made, the copy count indicates the initial count. When you press the Copy Start key after replenishing the cassette with copy paper after copying operation has stopped in response to the absence of paper, the remaining number of copies will be made automatically.

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⑥ The Jam message appears and the copying operation stops if a jam occurs. The copy count will indicate the remaining number of copies when you clear the jam.

⑦ The copier will return to standard mode if you left it alone for about 2 min after a copying session or after any key operation. The copier will turn off automatically if you leave it alone for about 5 min* (auto power-off).
*30 min for North America.
(You may change the auto clear time or auto power-off time; see the descriptions on user mode on p. 1-14.)

Caution:
1. **Feed postcards vertically.**
2. **Feed A4/Letter label sheets horizontally.**

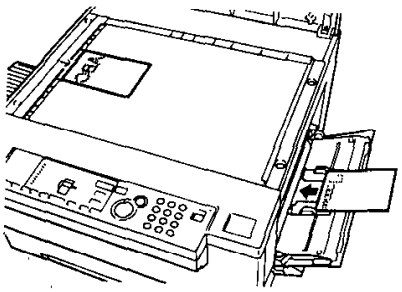

Figure 1-404 (Feeding a Postcard)

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C. Making Two-Sided/Overlay Copies (manual)

You can make two-sided or overlay copies by manually feeding paper. You must, however, keep the following in mind when making such copies:

① Be sure to orient the paper the same way for both sides when turning it over.
② Make sure that the paper has not absorbed moisture.
③ Make sure that the paper has no curling.
④ After copying on the first side, sufficiently cool the paper; then, correct any curling before feeding it for a second time.
⑤ Use paper of 60 to 128 g/m².
⑥ Correct any curling on postcards or thick paper (128 g/m²) before copying on the second side.

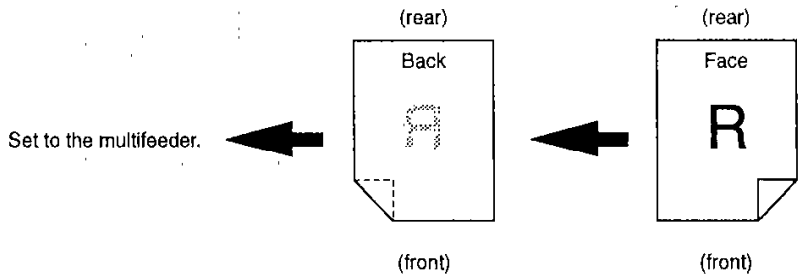

Figure 1-405

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D. User Mode

1. Outline

The copier provides user mode, which allows the user to change various settings or to make various adjustments on his/her own; see Table 1-402.

Menu No.	Display	Function	Description	Default settings
1	U 1	Changing the auto clear time	You may set the auto clear time between 1 and 9 min in 1-min increments. Setting it to '0' disables the function.	2 min
2	U 2	Changing the auto power-off time	You can set the auto power-off time to either 2, 5, 10, 15, 30, 60, or 120 min.	5 min (30 min for North America)
3	U 3	Fine adjusting (zoom)	You can correct a slight discrepancy between original and copy sizes (direct); enlarge in X direction and reduce in Y direction independent of each other.	± 0%
5	U 5	Turning on/off auto sort/non-sort (with ADF* and sorter* installed) *Option	You may specify whether to evecute auto sort/non-sort.	On
6	U 6	Cleaning the feeder (with ADF* installed) Option	Use it to clean the pick-up assembly of the ADF.	
7	U 7	Clearing the 'Replace Drum Counter/Drum' message (North America only)	Use it to clear the total copy count indication or to stop the message (flashing).	
9	U 9	Selecting a density adjustment method for standard mode	You can specify either AE or manual for density adjustment for standard mode.	AE
0	U 0	Initializing user mode	You can return settings changed in user mode to initial settings.	

Table 1-402

2. Common Operations

a. Keys to Use in User Mode

- Clear Key
  Use it to return to the previous step; or, use it to clear a setting entered by mistake when making mode settings.
- Start Key
  Use it to accept a selected item when making user mode settings.
- AE Key
  Use it to return to copy mode when making user mode settings.

b. Operation

1) Hold down the AE key for about 4 sec or more.
   - This will turn on the display, indicating "U 1".
2) Enter the menu number of each function using the keypad.
3) Press the Start key.
   - The current setting of the respective function appears.
4) Enter a new setting using the appropriate key.
5) Press the start key.
   - The copy count/ratio indictor turns on to indicate the user mode being changed.

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- The setting of the respective user mode is changed.

6) Press the AE key.
   - The copier returns to standby state.

3. Changing the Auto Clear Time (U 1)

1) Hold down the AE key for 4 sec or more.
   - "U 1" appears on the display.
2) Press the Start key.
   - The display indicates the current setting (if initial, indicates '1-2').
3) Enter a desired setting using the keypad.
   - The display indicates the new setting (if 5 min, indicates '1-5').
4) Press the Start key. "U 1"
5) Press the AE key.
   - The copier returns to standby state.

4. Changing the Auto Power-Off Time (U 2)

1) Hold down the AE key for 4 sec or more.
   - "U 1" appears on the display.
2) Enter '2' using the keypad so that the display indicates "U 2".
3) Press the Start key.
   - The display indicates the current setting (if initial, indicates '2-2').
4) Enter a desired setting using the keypad.

Auto power-off time (min)	Settings
2	2-1
5	2-2
10	2-3
15	2-4
30	2-5
60	2-6
120	2-7

Table 1-403

   - The display indicates the new setting (if 10 min, indicates '2-3').
5) Press the Start key.
   - The auto power-off time is changed, and the display returns to "U 2".
6) Press the AE key.
   - The copier returns to standby state.

Reference:
If you want to disable the auto power-off function, use service mode (See p. 3-82.).

5. Zoom Fine-Adjustment (U 3)

1) Hold down the AE key for 4 sec or more.
   - The display indicates "U 1".
2) Enter '3' using the keypad so that the display indicates "U 3".
3) Press the Start key.
   - The display indicates '3-1' suggesting the direction of adjustment.

Direction of adjustment	Display
X direction (horizontal)	3-1
Y direction (vertical)	3-2

Table 1-404

   Further, the copy density indicator shows the current setting. (See Figure 1-406.)
4) Press the copy density key to adjust the reproduction ratio in X direction. (See Figure 1-406.)
5) Press the Start key.
   - The reproduction ratio in X direction is fine-adjusted, and the display indicates '3-2'. Further, the copy density indicator shows the current setting. (See Figure 1-406.)
6) Press the Density key to adjust the reproduction ratio in Y direction. (See Figure 1-406.)
7) Press the Start key.
   - The zoom reproduction is fine-adjusted, and the display returns to "U 3".
8) Press the AE key.
   - The copier returns to standby state.

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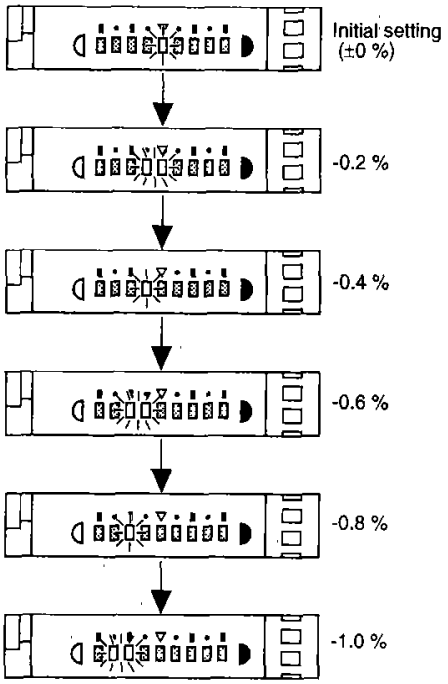
The fine-adjustment reproduction ratios as shown in the copy density display are as follows:

■ Zoom Fine-Adjustment (Reduce)
Press the Lighter key.



■ Zoom Fine-Adjustment (Enlarge)
Press the Darker key.

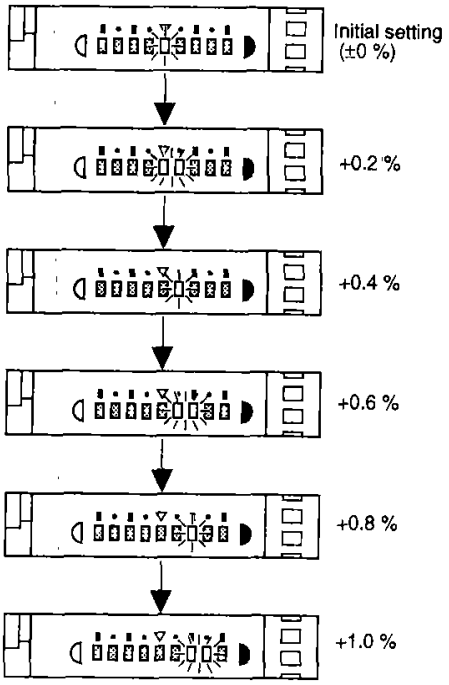


Figure 1-406

6. Turning On and Off the Auto Cassette Change Mechanism (U 4)

1) Hold down the AE key for 4 sec or more.
   • The display indicates " U 1 ".
2) Enter ④ using the keypad so that the display indicates " U 4 ".
3) Press the Start key.
   • The display indicates the current setting (if initial setting, '4-1').

State of auto cassette change function	Settings
On	4-1
Off	4-0

Table 1-405

4) Enter ① or ⓪ using the keypad to specify 'On' or 'Off'.
   • The display indicates the new setting (if Off, '4-0'.)
5) Press the Start key.
   • The auto cassette change function is turned on or off, and the display returns to " U 4 ".
6) Press the AE key.
   • The copier returns to standby state.

7. Turning On/Off the Auto Sort/Non-Sort (with ADF and sorter installed—option) (U 5)

1) Hold down the AE key for 4 sec or more.
   • The display indicates " U 1 ".
2) Enter ⑤ using the keypad so that the display indicates " U 5 ".
3) Press the Start key.
   The display indicates the current setting (if initial settings, '5-1').

Turning on/off the auto cassette change mechanism	Settings
On	5-1
Off	5-0

Table 1-406

4) Enter ① or ⓪ using the keypad to select On or Off.
   • The display indicates the new setting (if Off, '5-0').
5) Press the Start key.
   • The auto cassette change will be either On or Off, and the display returns to " U 5 ".
6) Press the AE key.
   • The copier returns to standby state.

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8. Cleaning the Feeder (with ADF installed—option) (U 5)

1) Hold down the AE key for 4 sec or more.
   • The display indicates "U 1".
2) Enter ⑥ using the keypad so that the display indicates "U 5".
3) Place about 10 sheets of blank copy paper (white) on the ADF's original tray.
4) Press the Start key.
   • Feeder cleaning starts; to stop, press the Stop key.
   During the cleaning operation, "U 5" on the display flashes; then, "U 5" stops flashing and remains on.
5) Press the AE key.
   • The copier returns to standby state.

9. Clearing the 'Drum Counter/Replace' Message (flashing; North America only) (U 7)

1) Hold down the AE key for 4 sec or more.
   • The display indicates "".
2) Enter ⑦ using the keypad so that the display indicates "U 7".
3) Press the Start key.

Clearing Drum Counter/Replace Drum Message (flashing)	Settings
Drum counter	7-1
Flashing indicator	7-2

Table 1-407

4) Enter ① or ② using the keypad to select 'drum counter' or the message (flashing). If you select the message, '7–2' appears on the display.
5) Press the Start key.
   • If '7–1' is displayed, the total copy count will be indicated on the display in units of 100s.
   • If '7–2' is displayed, the 'Replace Drum' message (flashing) on the control panel will be cleared and "U 7" returns to the display.
6) Press the AE key.
   • The copier returns to standby state.

10. Selecting the Density Adjustment Method for Standard Mode (U 9)

1) Hold down the AE key for 4 sec or more.
   • The display indicates "U 1".
2) Enter ⑨ using the keypad so that the display indicates "U 9".
3) Press the Start key.
   • The display indicates '9-1'.

Selecting the density adjustment method for standard mode	Settings
AE (automatic)	9-1
Manual	9-0

Table 1-408

4) Enter ① or ⓪ using the keypad to select AE or manual so that the display indicates the new specification (if manual, indicates '9-0').
5) Press the Start key.
   • The new specification is stored, and the display returns to "U 9".
6) Press the AE key.
   • The copier returns to standby state.

11. Initializing User Mode (U 0)

1) Hold down the AE key for 4 sec or more.
   • The display indicates "U 1".
2) Enter ⓪ using the keypad so that the display indicates "U 0".
3) Press the Start key.
   • The display indicates '0-1'.
4) Enter ⓪ using the keypad.
   • The display indicates "0 0".
5) Press the Start key.
   • User mode is initialized, and the display returns to "U 0".
6) Press the AE key.
   • The copier returns to standby state.

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12. Quick Guide to User Mode

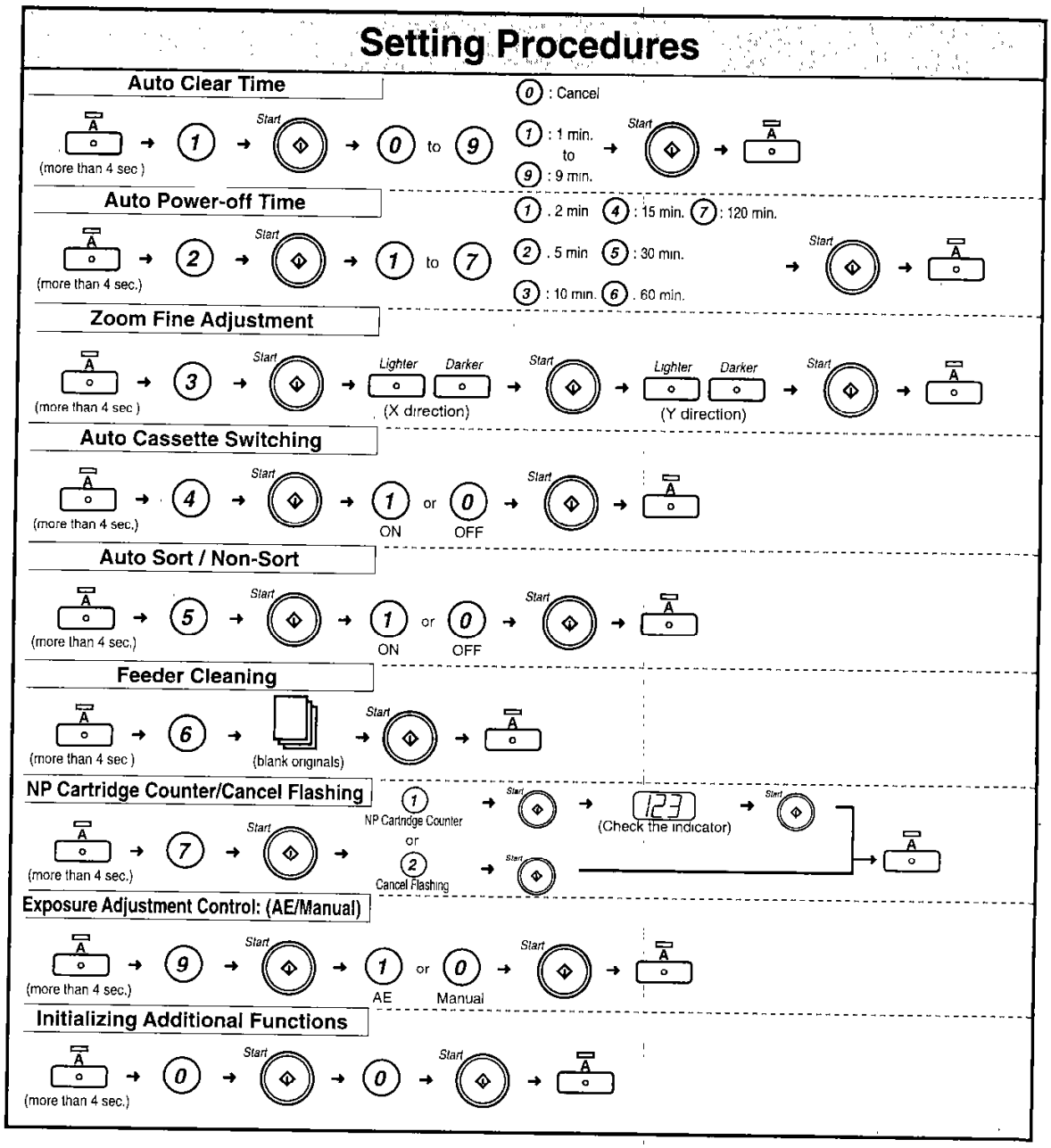

Table 1-409

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V. WARNINGS AND ACTIONS

A. Jam Indicator

The respective indicator flashes when there is a jam in the corresponding location. Make a check and take the appropriate action as described below.

For instructions as to removing jams from any option (sorter/ADF), see its respective service manual.

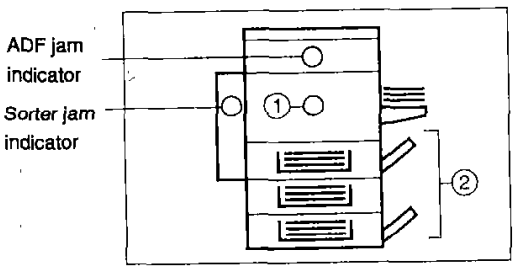

Figure 1-501

If the copier jams, check first the pick-up assembly, separation/feeding assembly, fixing/delivery assembly, and drum cartridge, and remove the jam if found.

1. Flashing ①

1) Open the copier front door.
2) Open the copier's top body by operating the copier open/close lever.

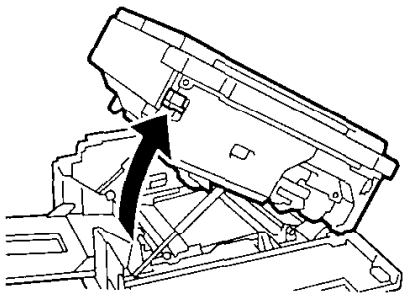

Figure 1-502

3) If paper is found in the registration assembly, turn the knob clockwise, and pull out the paper in the direction of the arrow, taking care not to tear it. At the time, be careful not to touch the transfer roller.

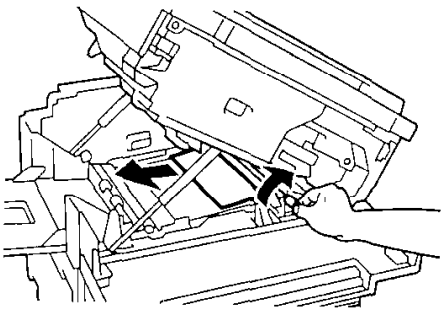

Figure 1-503

4) If paper is found in the feeding assembly, pull out the paper toward the front. At the time, take care not to touch the drum.

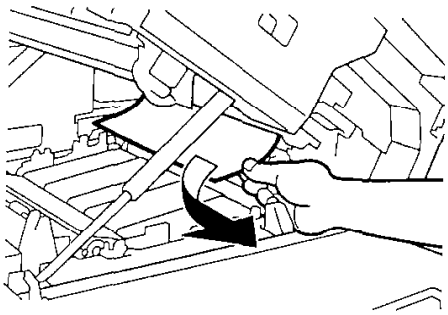

Figure 1-504

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5) If paper is found in the pick-up assembly,
   - Remove the paper from the multifeeder, and remove the jam.

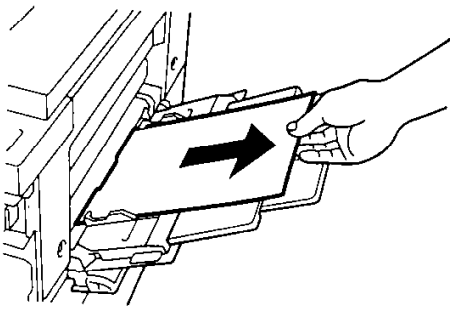

Figure 1-505

- Close the multifeeder, and open the right side door of the copier cassette assembly; then, remove the paper as shown.
- If the paper is stuck deep inside, open the inside guide to remove it.

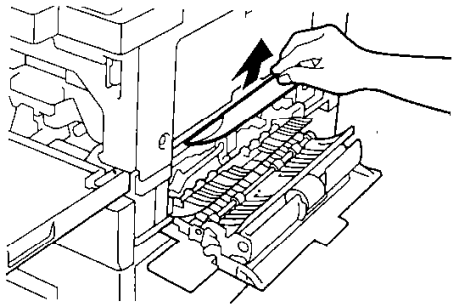

Figure 1-506

6) If paper is found in the fixing/delivery assembly,
   - Open the copier front door.
   - Open the copier top body cover by operating the copier open/closed lever.
   - Pull out the paper in the direction of feeding. At the time, take care not to touch the fixing roller, which is likely to be very hot.

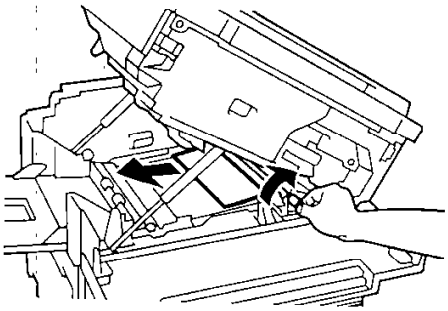

Figure 1-507

7) When you have removed all paper, close the copier top body and the front door.

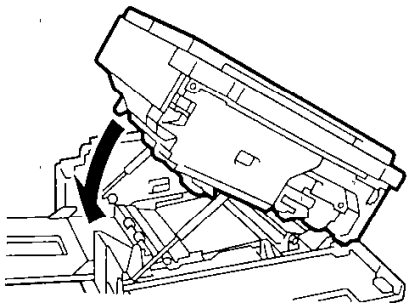

Figure 1-508

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2. ② Flashing

1) Open the copier front door.
2) Open the door to the cassette assembly shown by the flashing indicator. If the copier cassette assembly (top) is indicated, additionally open the inside guide.

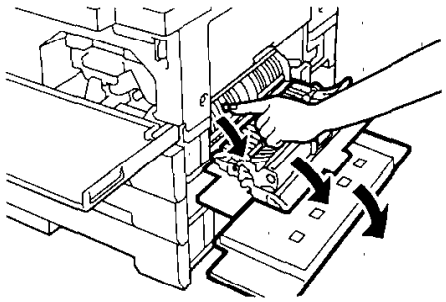

Figure 1-509

3) Pull out the paper in the direction of the arrow.

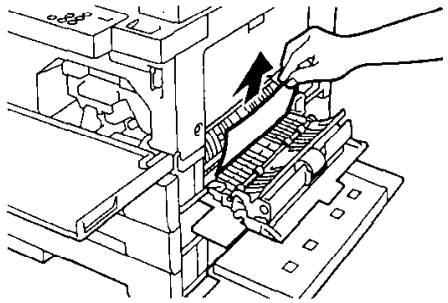

Figure 1-510

4) If you cannot remove the paper as described in step 2) or 3), slide out the cassette from the cassette assembly shown by the flashing indicator.

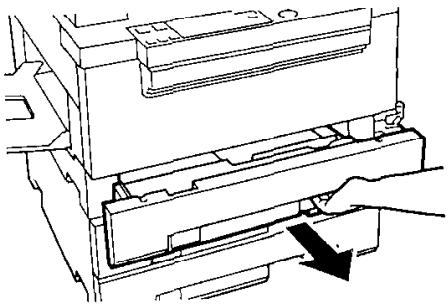

Figure 1-511

5) Remove the paper that is sticking out of the cassette.

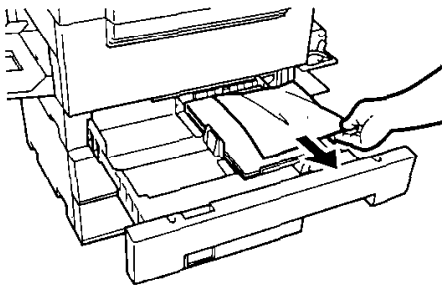

Figure 1-512

6) Slide in the cassette. If it is the copier cassette assembly, firmly close the right side door of the inside guide and copier cassette assembly.

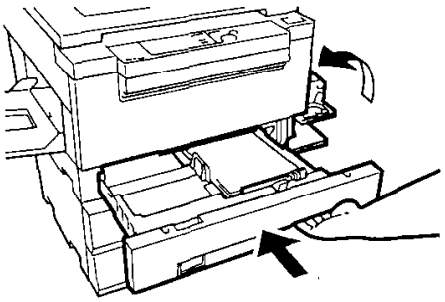

Figure 1-513

7) When you have removed all paper, close the front door.

Caution:
If you closed the front door before closing others, you must open and close the front door once again.

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B. Paper Indicator

The indicator flashes if no cassette is set in the cassette holder or the cassette is out of paper.

1. Replenishing the Cassette with Paper

1) Slide out the cassette until it stops.

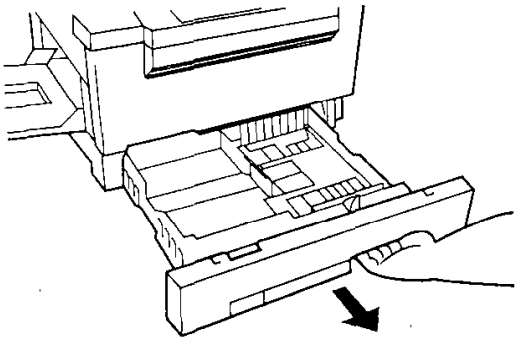

Figure 1-514

2) Open the package, and take out the paper.

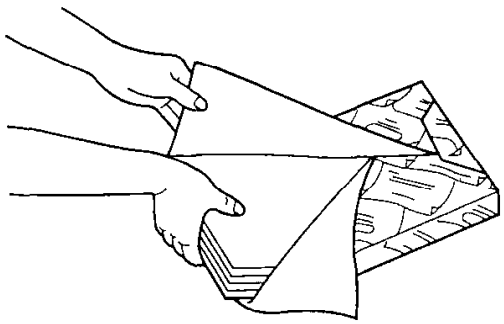

Figure 1-515

3) Hold the stack of paper, and put it in the cassette butting it against the right side of the cassette.
Make sure that the side of the stack that appeared when you separated the wrapping is facing the bottom of the cassette.

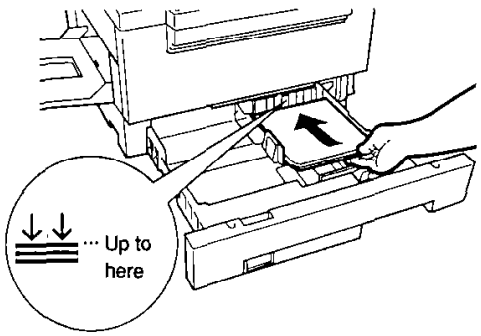

Figure 1-516

4) Set the cassette in the copier.

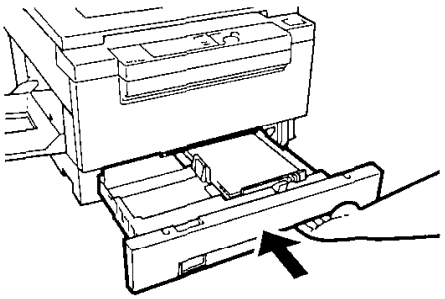

Figure 1-517

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C. Replacing the Static Eliminator

1) Open the front door, and open the copier's top body by operating the copier open/close lever.

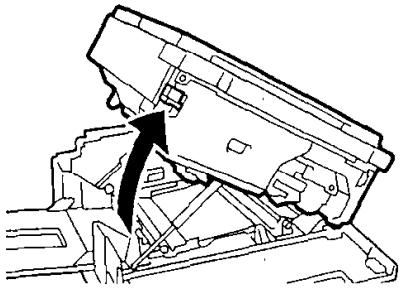

Figure 1-518

2) Lift the static eliminator to detach it from the copier by holding the pick found at the front.

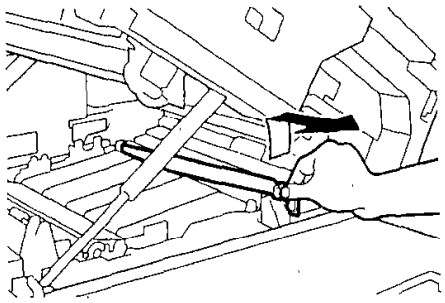

Figure 1-519

3) Insert a new static eliminator with its rear end first, and push it until a click is felt.

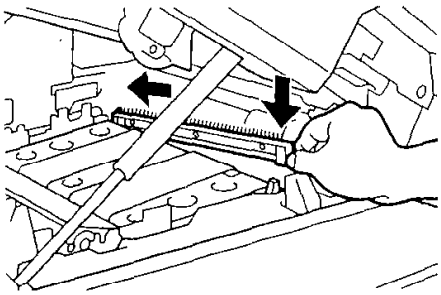

Figure 1-520

Caution:
You must replace the static eliminator before replacing the drum cartridge.

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D. Replace Toner Indicator

The indicator flashes when the developing assembly runs out of toner.

1) Open the copier front door.
2) While pushing the grip on the toner cartridge, turn it clockwise until it stops; then, pull out the toner cartridge toward the front.

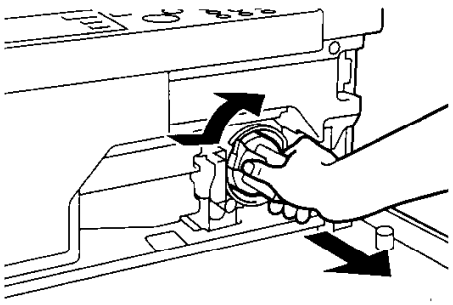

Figure 1-521

3) Hold the new toner cartridge level, and shake it back and forth several times to even out the toner inside.

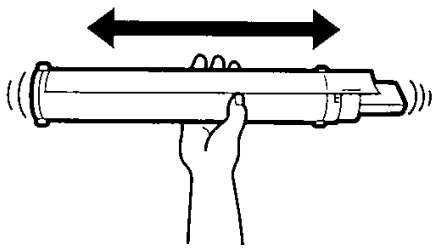

Figure 1-522

4) Insert the toner cartridge into the copier until it stops.

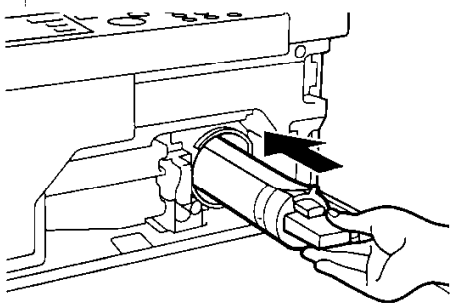

Figure 1-523

5) Hold the orange portion of the OPEN seal, and remove the seal by pulling it straight out while holding the toner cartridge in place.

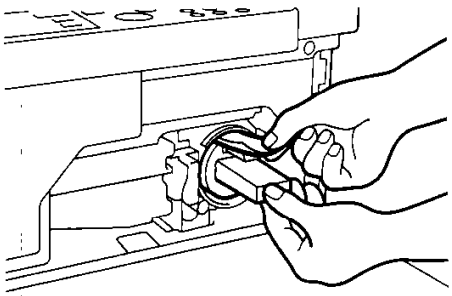

Figure 1-524

6) Turn the grip of the toner cartridge counterclockwise until it locks.

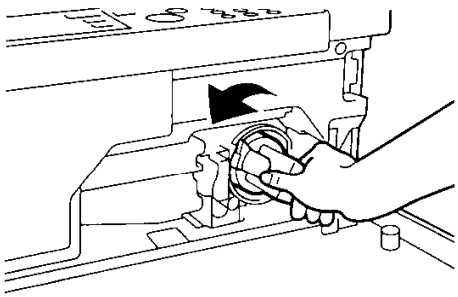

Figure 1-525

7) Close the front door.

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E. Control Card Indicator

The control card indicator flashes under the following conditions when the copier is configured for a control car unit (option).

- No control card is inserted or inserted but improperly.
- A control card is inserted in the control card unit, but the card is not valid for the unit.

Reference:
The indicator flashes if a control card remains inserted at power-on.

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VI. ROUTINE MAINTENANCE BY THE USER

Make sure that the user cleans the following parts once a week:

① Copyboard Glass
Use a cloth moistened with water or mild detergent solution; then, dry wipe it.

② Copyboard Cover
Use a cloth moistened with water or mild detergent solution; then, dry wipe it.

③ Static Eliminator
If separation jams occur frequently, use the special brush (accessory) to clean it; the eliminator need not be cleaned as often as once a week.

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I. IMAGE FORMATION

A. Outline

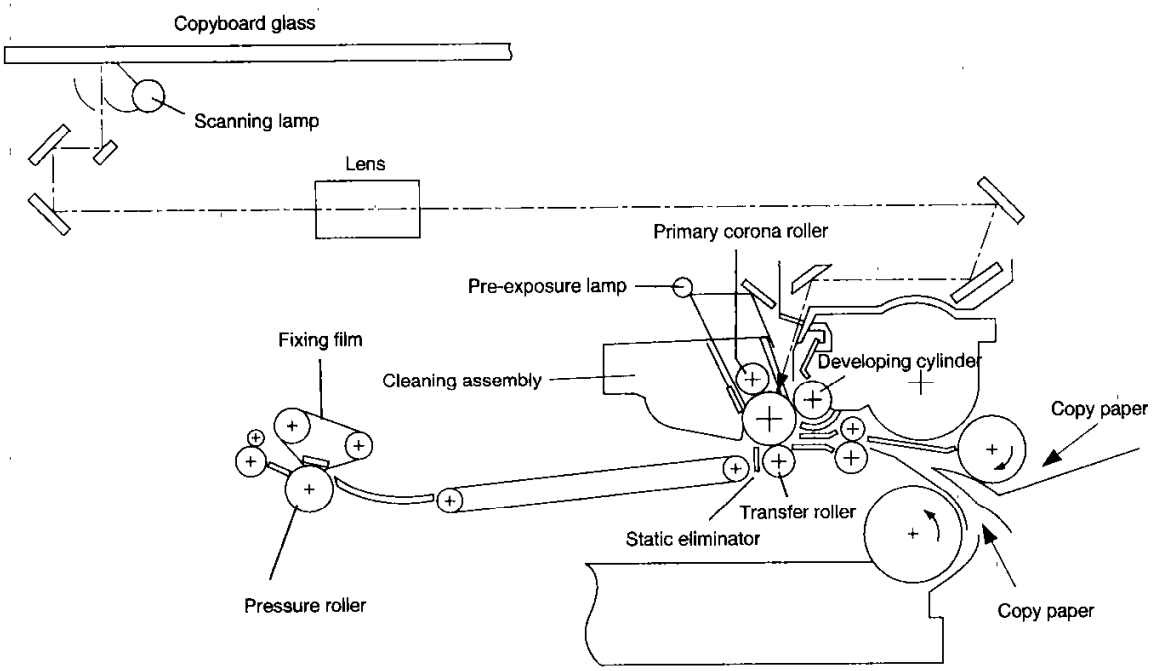

Figure 2-101

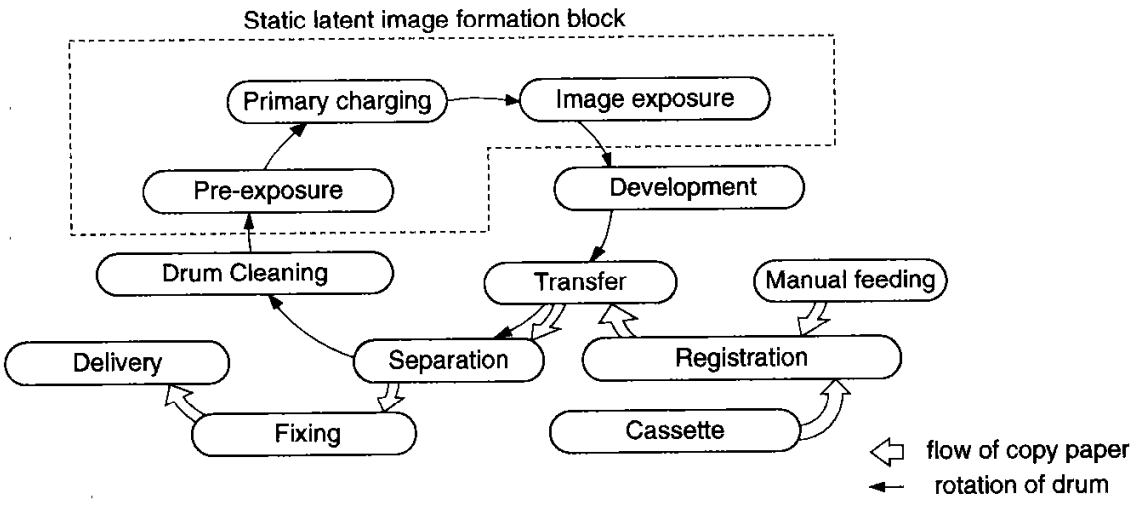

Figure 2-102

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The copier forms images through the following steps, and each of the step functions as described below.

step 1 pre-exposure
step 2 primary charging (negative DC)
step 3 image exposure
step 4 development (AC and negative DC bias)
step 5 transfer (negative DC)
step 6 Separation (curvature + static eliminator)
step 7 fixing
step 8 drum cleaning

The photosensitive drum consists of a photoconducting layer on the outside and an aluminum base on the inside; the photoconducting layer is made of organic photoconductor (OPC), and the aluminum conductor is a photoconductor.

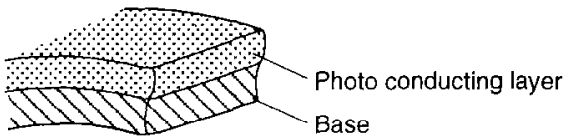

Figure 2-103

B. Latent Static Image Formation Block

The block consists of three steps; at the end of the block, areas of the drum corresponding to the black areas of the original are left with negative charges and the areas of the drum corresponding to the white areas of the original are rid of negative charges.

The images formed on the drum by the presence and absence of negative charges are not visible to the human eye and, therefore, the term *latent static* images.

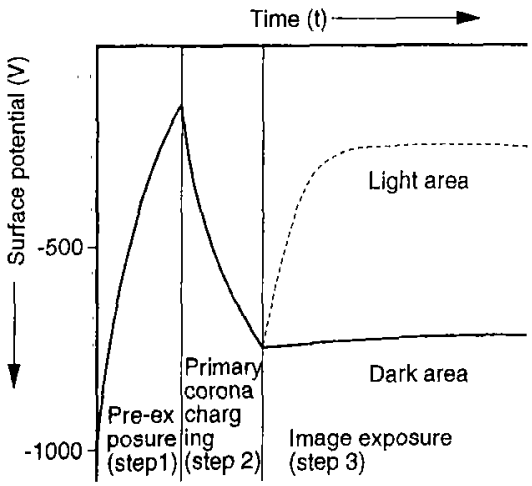

Figure 2-104

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C. Step 1 (pre-exposure)

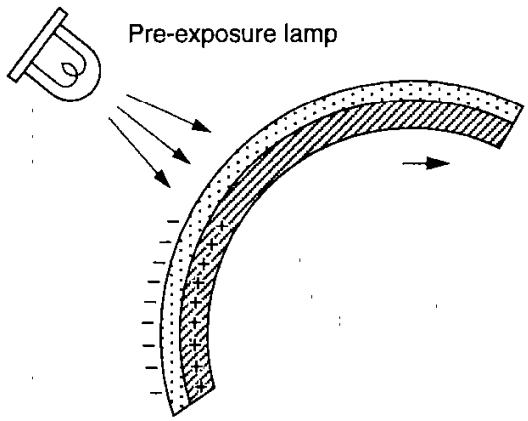

Figure 2-105

Before primary charging takes place, the light of the pre-exposure lamp is directed to the photosensitive drum to eliminate the residual charges on the drum, thereby preventing uneven density.

D. Step 2 (primary charging)

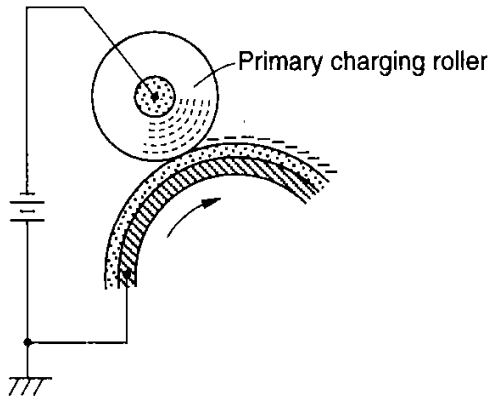

Figure 2-106

The copier uses what is termed *primary charging*, in which a charging roller made of conducting roller directly charges the photosensitive drum. Compared to the conventional corona charging method, direct charging provides such advantages as a low application voltage and virtual absence of ozone.

The primary charging roller is a special roller and possesses different characteristics from the transfer roller.

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E. Step 3 (image exposure)

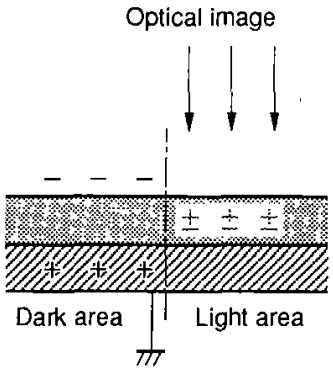

Figure 2-107

In this step, the optical image of an original is projected on the photosensitive drum to neutralize the charges in the *light* areas.

F. Step 4 (development)

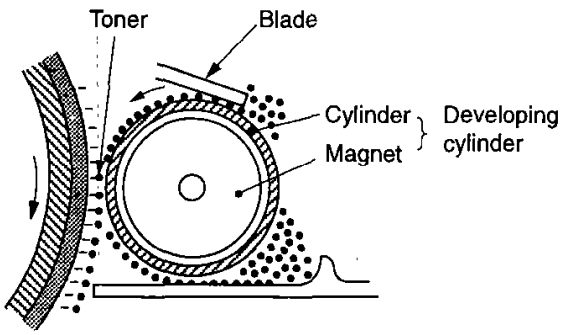

Figure 2-108

As shown in Figure 2-108, the developing assembly consists of a fixed magnet, a cylinder that rotates around the magnet, and a rubber blade.

The toner is a one-component toner whose main ingredient is magnetic resins.

The toner has insulating characteristics and becomes positively charged by friction against the rubber blade, which remains in contact under pressure with the cylinder; the toner is evened out to form a thin layer on the cylinder owing to the elasticity of the rubber.

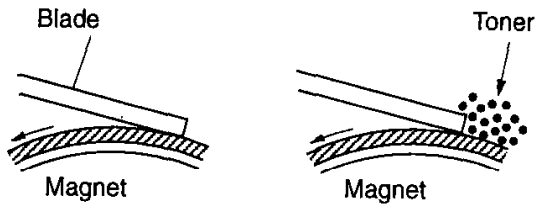

Figure 2-109

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An AC bias and DC bias (negative component) are applied simultaneously* to the developing cylinder and the blade.

* Termed *development bias*, whose negative component is larger than that of the positive component.

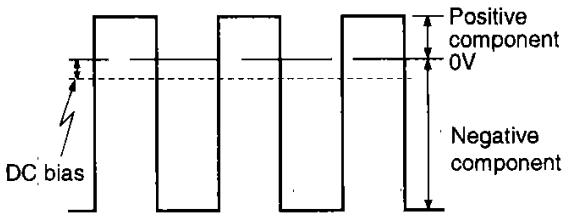

Figure 2-110

During copying operation, the drum surface potential and development bias (at time of positive component) draws toner to the photosensitive drum to turn the latent static image into a visible image. The excess toner is drawn away from the photosensitive drum by the work of the drum surface potential and the developing bias (at time of negative component).

The AC bias (frequency, in particular) mainly affects gradation; a lower frequency improves the gradation, but tends to result in fogging. The DC bias affects copy density and fogging; a higher bias, that is closer to 0 V, darkens the image but in turn could lead to fogging.

G. Step 5 (transfer)

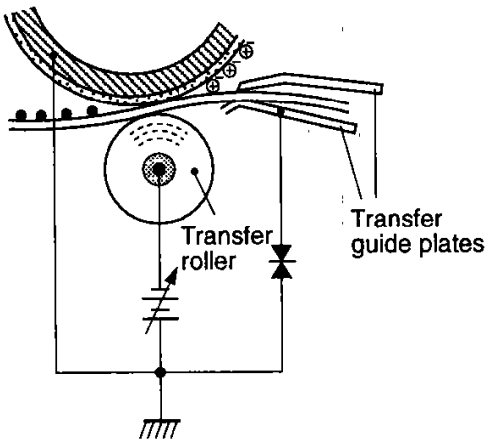

Figure 2-111

The transfer roller deposits negative charges on the back of copy paper to attract toner from the drum surface to the copy paper.

The copier uses a roller transfer method, which requires a lower transfer voltage compared to corona transfer methods and generates virtually no ozone.

To prevent transfer failure or soiling of the back of copy paper, the transfer guide is grounded through a varistor.

Reference:
If the transfer guide was grounded, the charges that should be on the back of copy paper would escape, causing transfer failure; by the same token, if the transfer guide is not grounded at all, it would become charged and soiled with deposits of toner, soiling the back of copy paper.

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Reference:
If the image on the photosensitive drum fails to transfer to copy paper because of a jam or the like, the transfer charging roller could become soiled with toner.
To prevent such a problem, the copier uses a positive transfer voltage when the scanner is moving in reverse or during post rotation, thereby returning the positively charged toner on the transfer roller to the photosensitive drum.

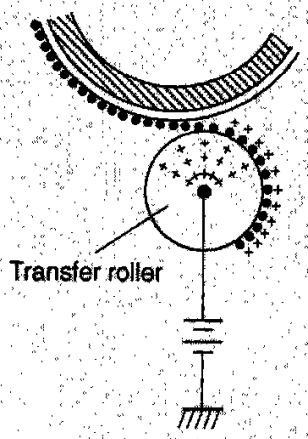

Figure 2-112

H. Step 6 (separation)

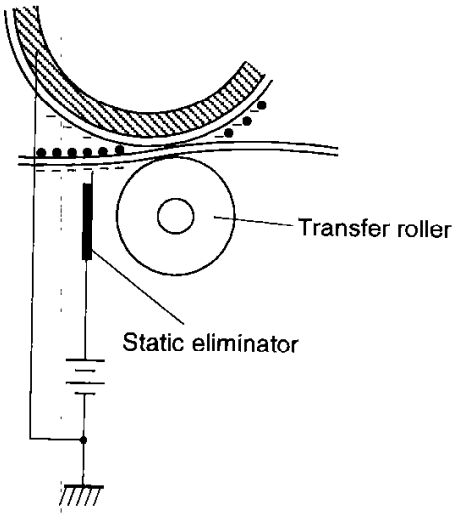

Figure 2-113

The copier uses a curvature separation method, which separates copy paper from the photosensitive drum by the rigidity of the paper. However, thin paper could at times fail to separate from the drum because of its low rigidity. To prevent such a problem, a positive charge is applied to the separation static eliminator, thereby weakening the static attraction for better separation.

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I. Step 7 (fixing)

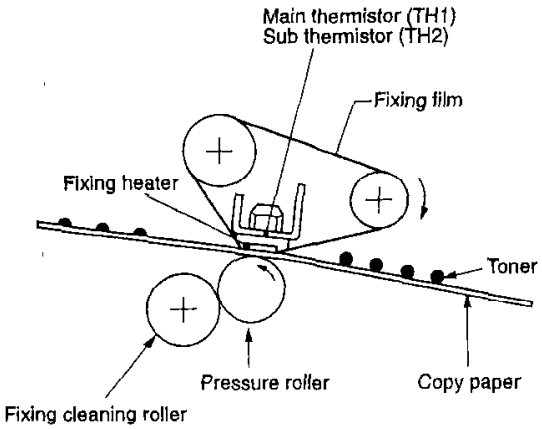

Figure 2-114

After transfer, the toner image is fused to the copy paper while the paper is moving between the fixing film and the pressure roller.

The fixing heater is a plane-shaped heater designed to heat the area of the fixing film that remains in contact, thereby eliminating warm-up time.

The temperature of the fixing heater is monitored by the main thermistor (TH1) located above the center of the fixing heater, and the heater is thermally controlled to a specific temperature.

In addition, the sub thermistor (TH2) found on the end of the fixing heater checks the temperature of the area where small-sized paper does not come into contact to prevent overheating. (See p. 3-48.) A fixing cleaning roller made of aluminum remains in contact with the pressure roller to remove toner from the pressure roller; it also serves to discharge heat of the pressure roller.

J. Step 8 (drum cleaning)

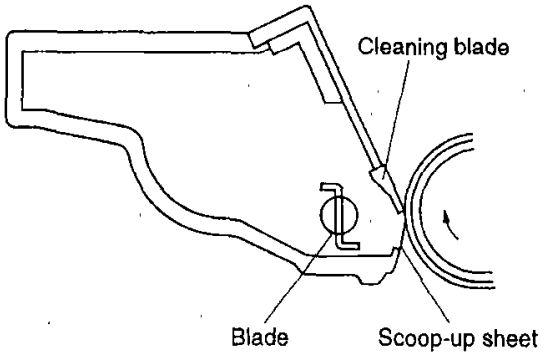

Figure 2-115

In this step, the cleaning blade scrapes off the toner remaining on the photosensitive drum in preparation for the next copy run. The toner is gathered by the scoop-up sheet and collected at the rear by a blade.

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II. AUXILIARY PROCESS

A. Blank Exposure

Blank exposure is executed to remove the drum surface potential of the non-image area that occurs as a result of the difference among copy sizes or when making copies in Reduce mode. (See p. 3-38.)

The light from the pre-exposure lamp is reflected by the reflecting plate and directed to the photosensitive drum.

The non-image area between sheets of copy paper is created by reflecting the light from the pre-exposure lamp by a separate reflecting plate, thereby exposing the whole area.

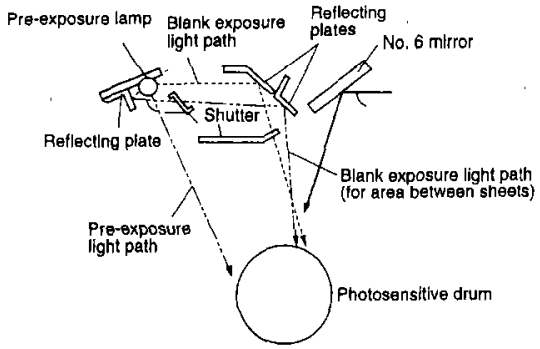

Figure 2-201

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I. BASIC CONSTRUCTION

A. Functional Construction

The copier may be divided into four blocks; namely, the pick-up/feeding system, exposure system, image formation system, and control system.

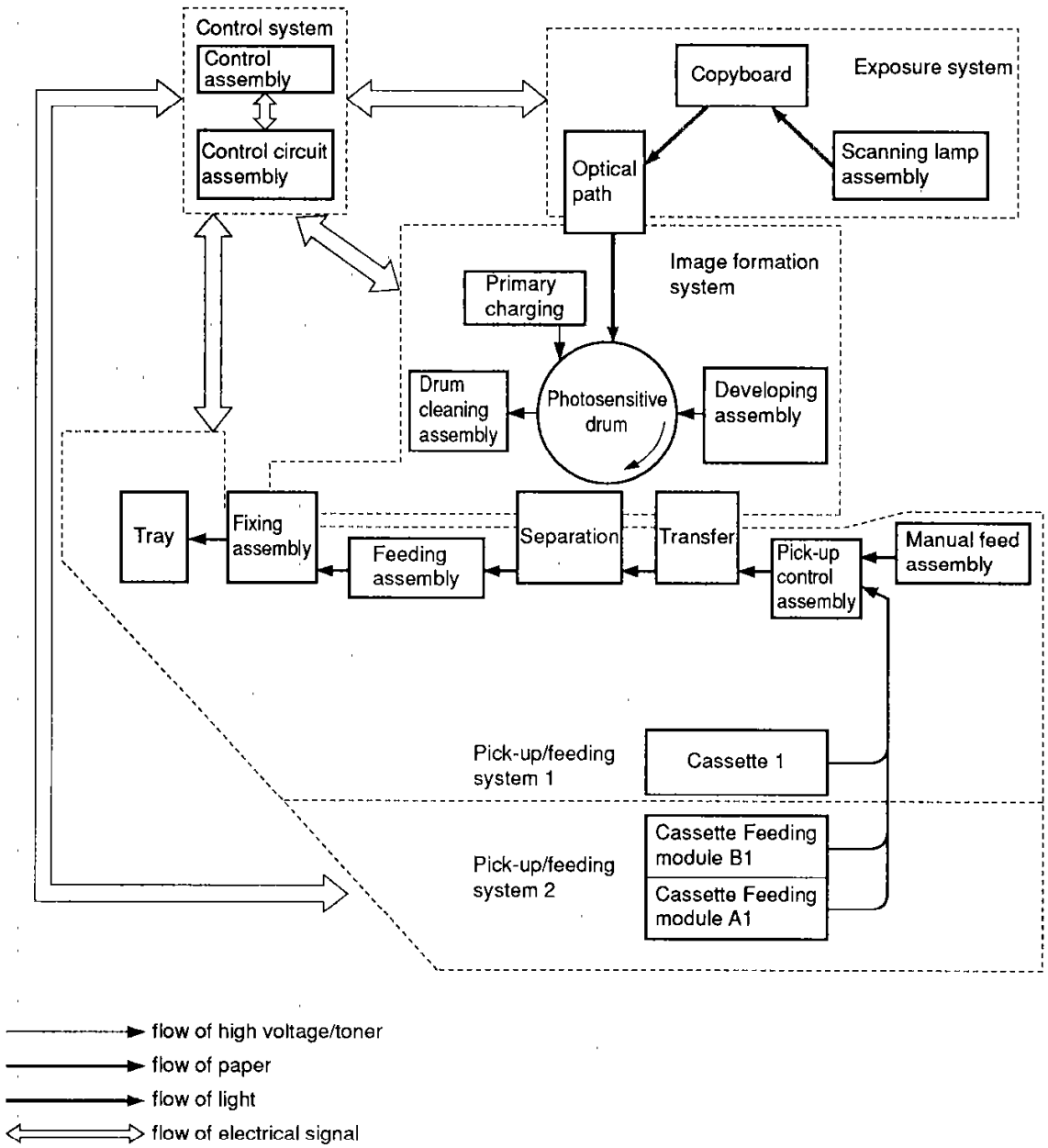

Figure 3-101

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B. Outline of the Electrical Circuitry

The copier's principal electrical mechanisms are controlled by the microprocessor on the DC controller PCB. The microprocessor reads the input signals from the sensors and operation keys according to the stored program and generates signals used to drive such loads as motors, solenoids, and lamps.

The microprocessor is capable of reading both digital and analog signals because of its built-in A/D converter.

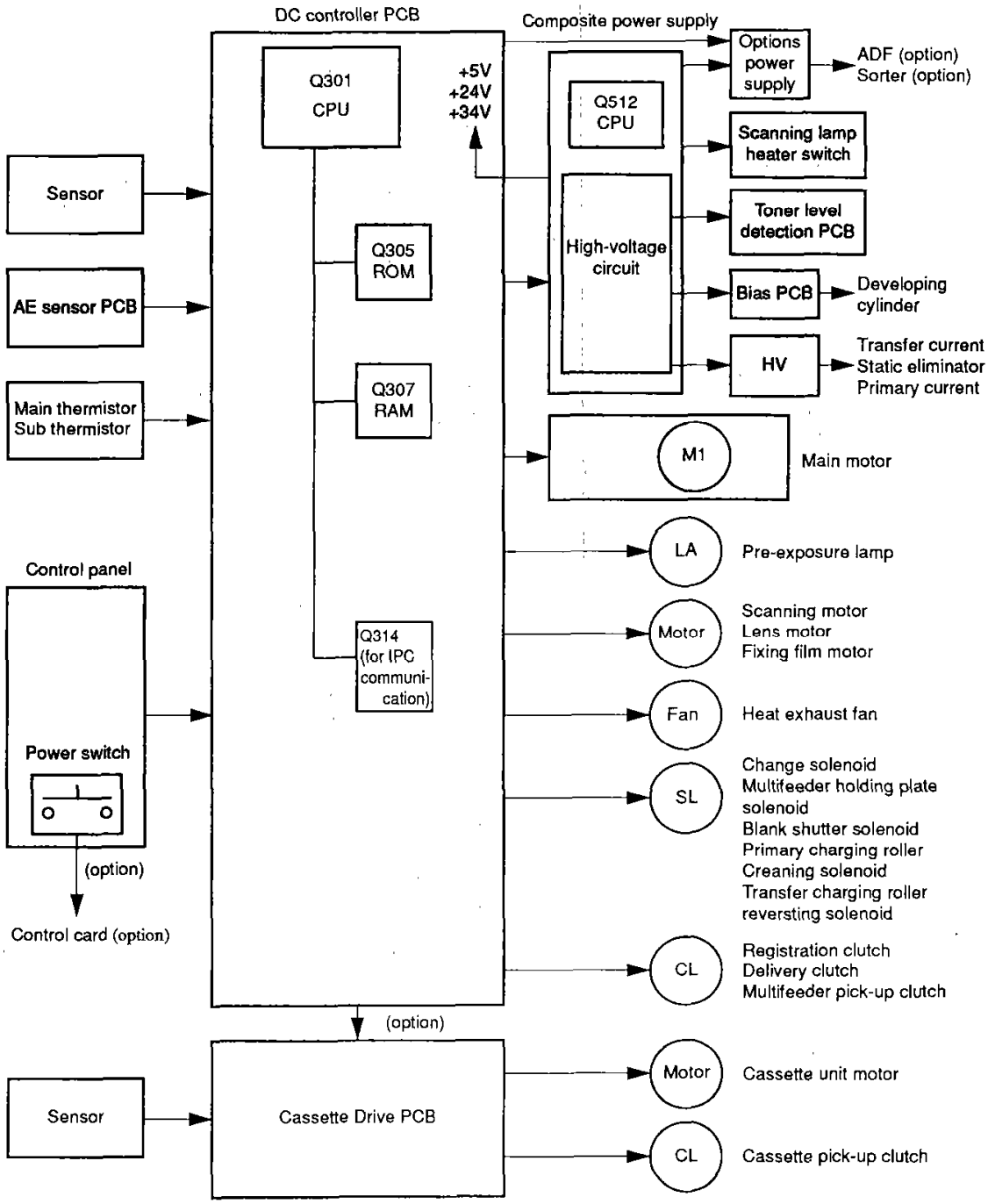

Figure 3-102

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C. Inputs to the DC Controller

1. Inputs to the DC Controller PCB (1/3)

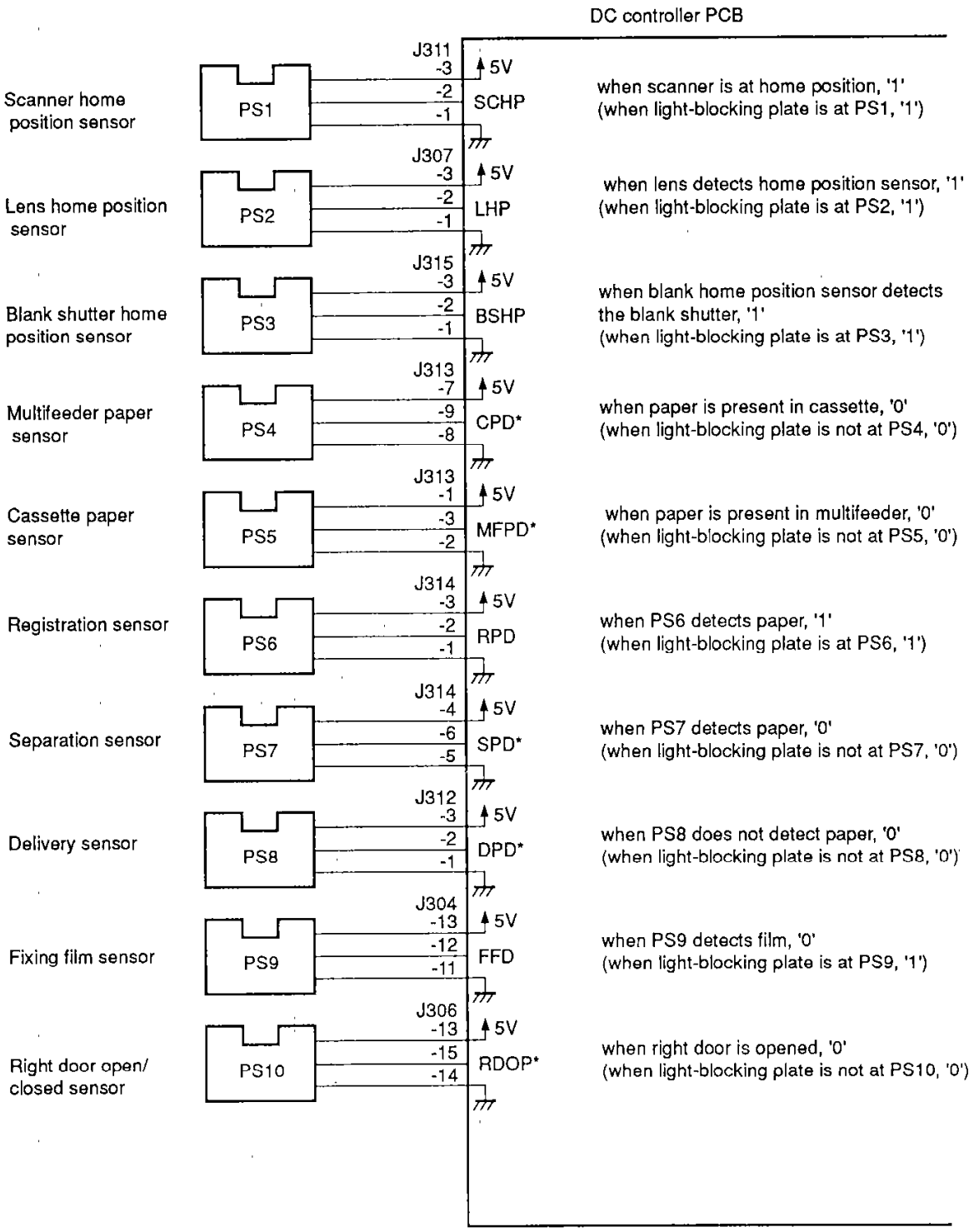

Figure 3-103

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2. Inputs to the DC Controller PCB (2/3)

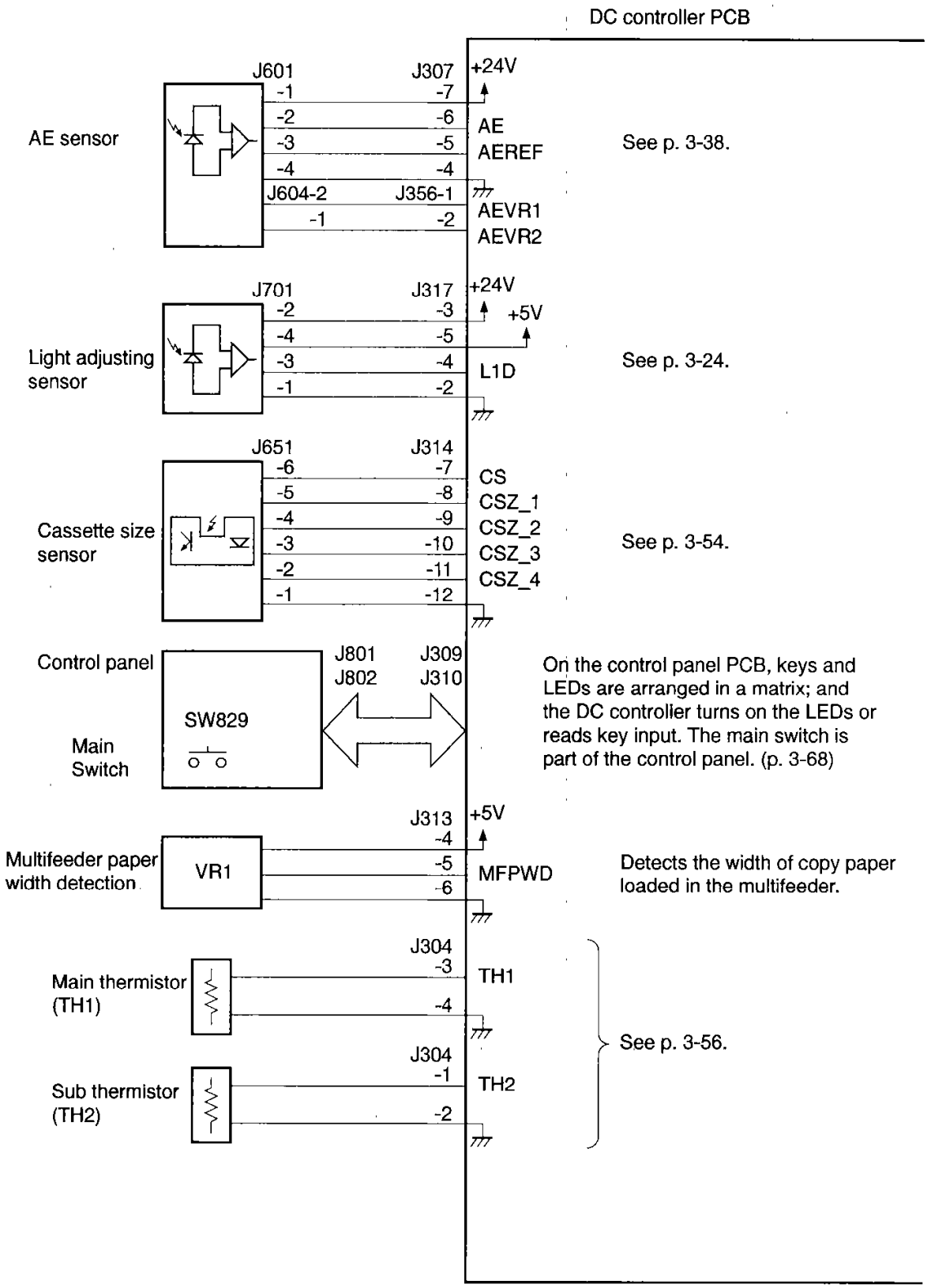

Figure 3-104

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3. Inputs to the DC Controller PCB (3/3)

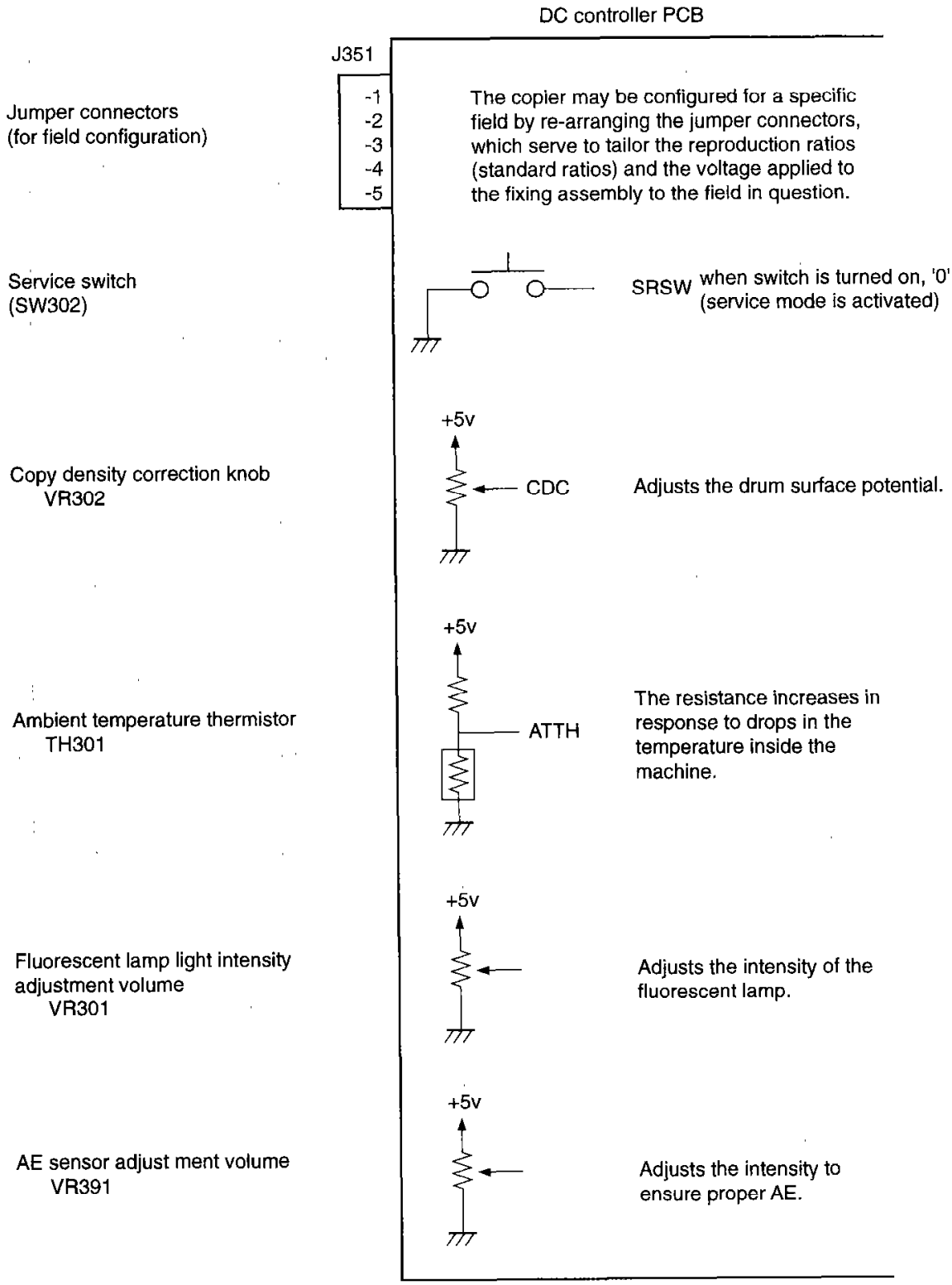

Figure 3-105

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D. Outputs from the DC Controller PCB

1. Outputs from the DC Controller PCB (1/3)

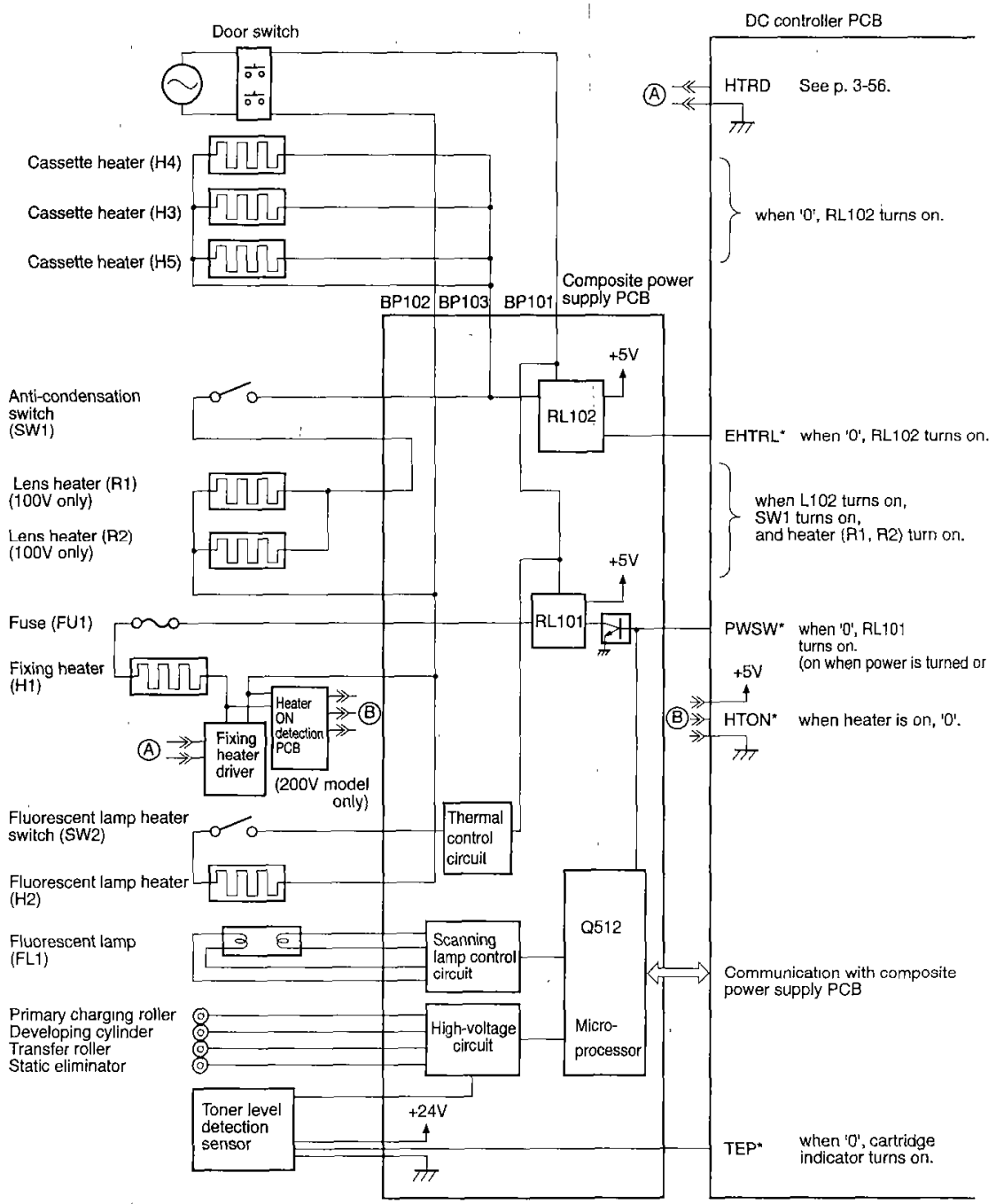

Figure 3-106

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2. Outputs from the DC Controller PCB (2/3)

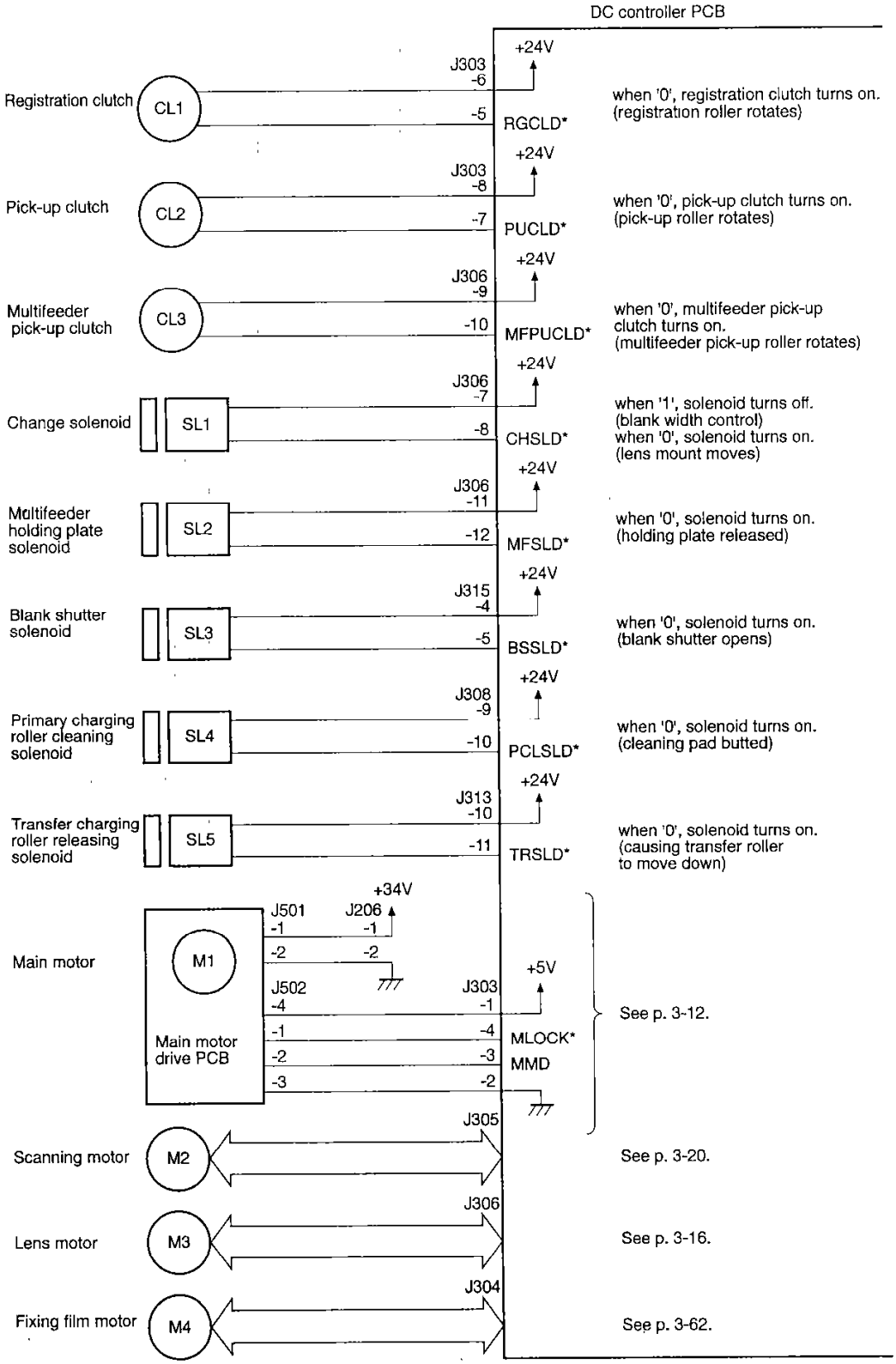

Figure 3-107

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3. Outputs from the DC Controller PCB (3/3)

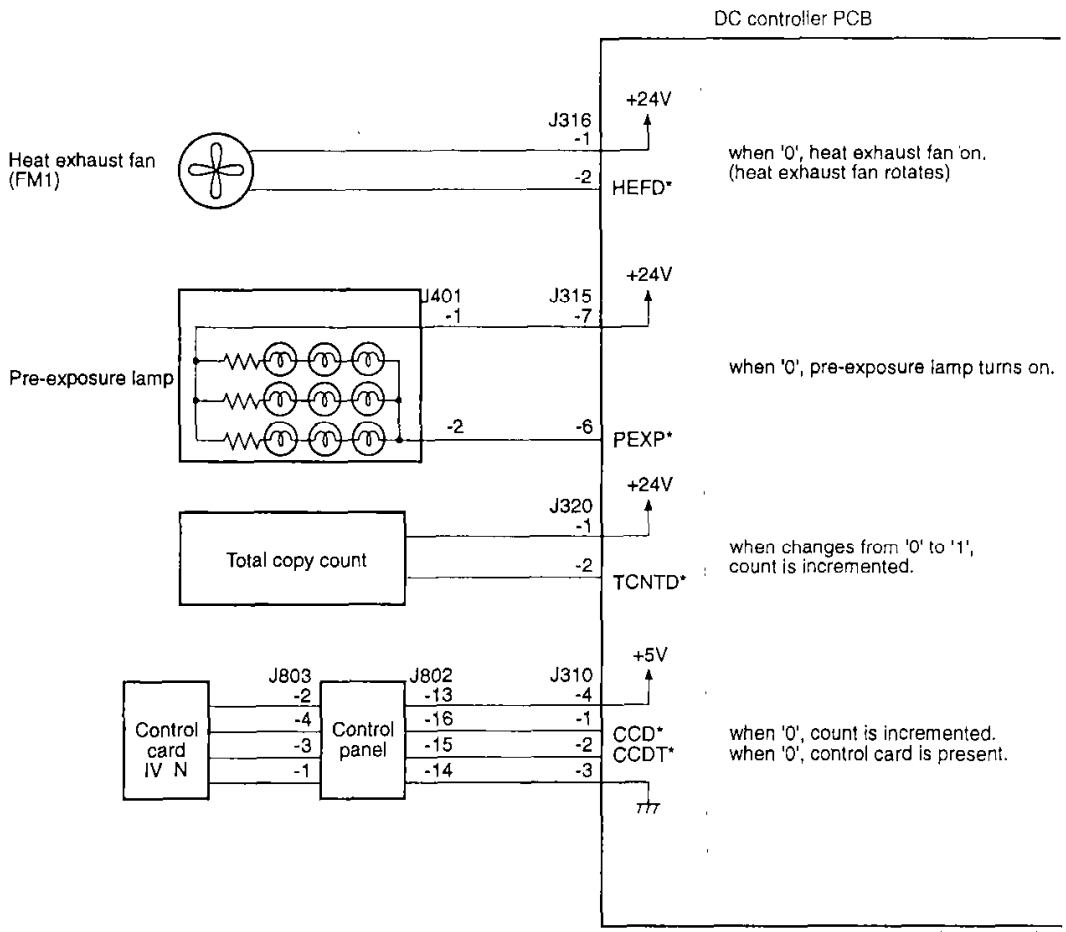

Figure 3-108

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E. Inputs to and Outputs from the 1-Cassette Unit Driver PCB

1. Inputs to and Outputs from the 1-Cassette Unit Driver PCB (1/1)

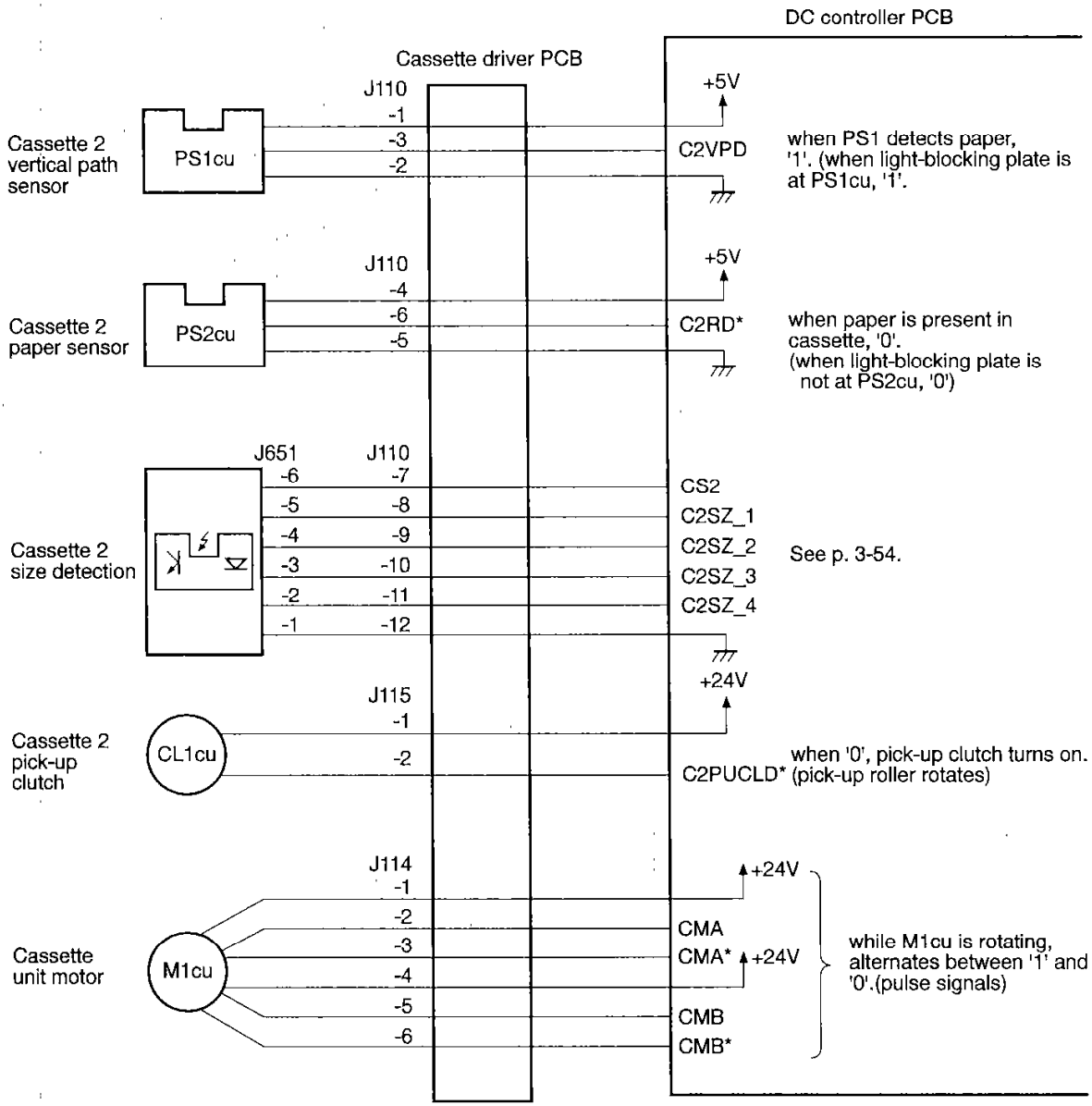

Figure 3-109

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F. Inputs to and Outputs from the 2-Cassette Unit Driver PCB

1. Inputs to and Outputs from the 2-Cassette Unit Driver PCB

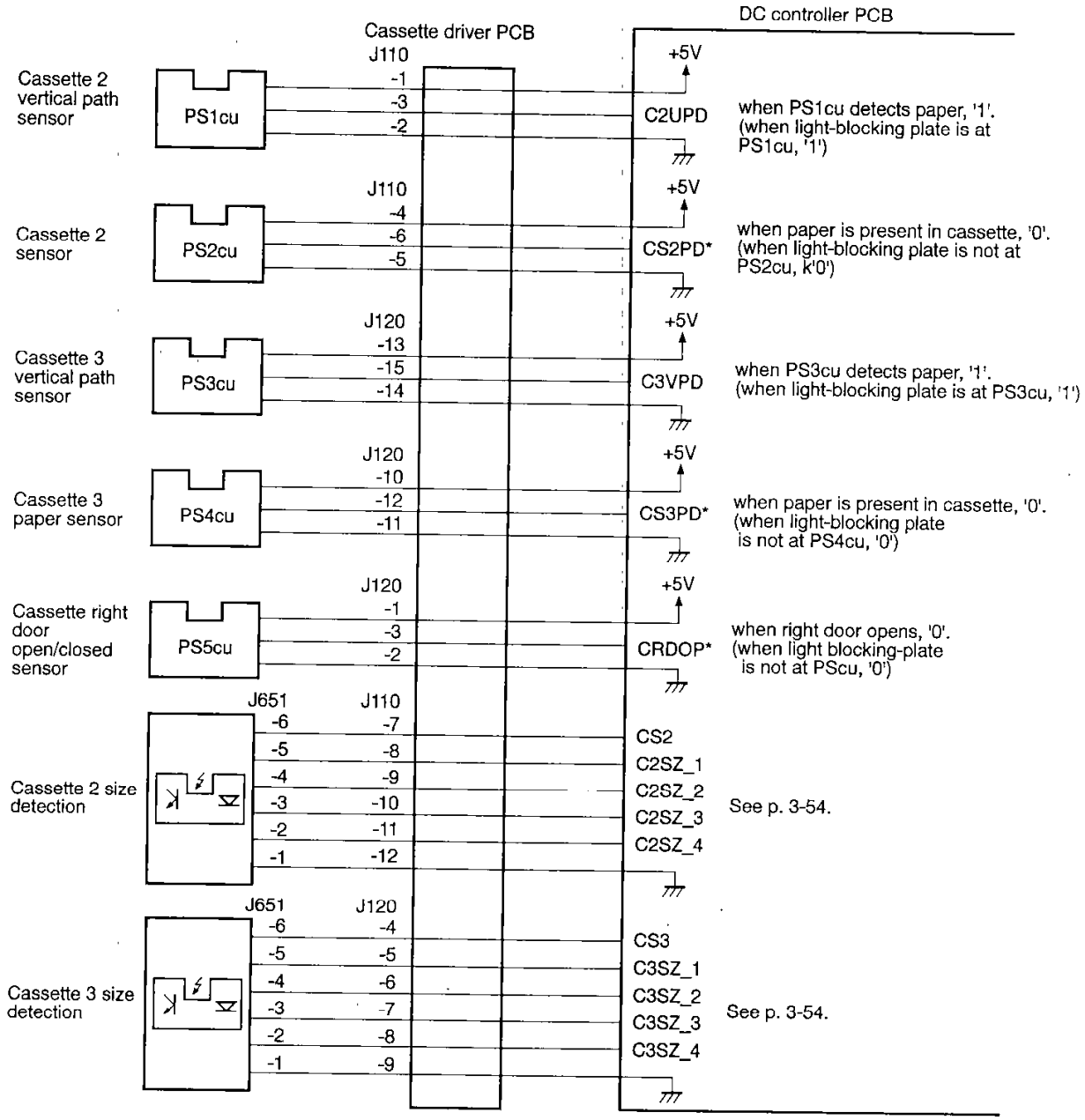

Figure 3-110

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2. Inputs to and Outputs from the 2-Cassette Unit Driver PCB (2/2)

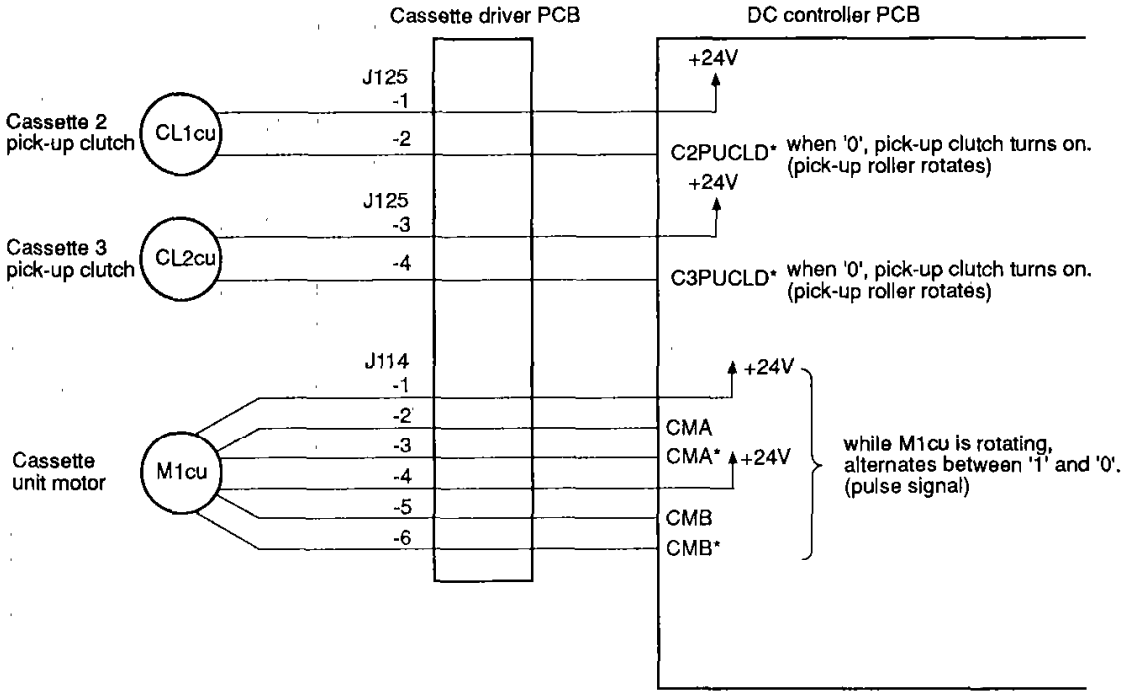

Figure 3-111

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G. Main Motor Control Circuit

1. Outline

Figure 3-112 shows the circuit used to control the main motor (M1); the circuit has the following functions:

① turns on and off the main motor.
② controls the main motor to a specific rotation speed.

The main motor (M1) is a DC motor that has a built-in clock pulse generator. When the motor rotates, it generates clock pulse signals (MMCLK*) according to the revolution of the motor. The speed control circuit matches the phases of the frequency of these clock pulses and that of the reference signals to control the main motor (M1) to a specific revolution speed.

2. Mechanism

When the main motor drive signal (MMD) from the DC controller circuit goes '1', the drive circuit of the motor driver turns on, thereby rotating the main motor (M1) at a constant speed.

While the main motor is rotating at a specific speed, the motor driver PCB keeps sending the specific speed state signal=0 (MLOCK*) to the DC controller PCB. If, for some reason, an irregularity occurs in the rotation of the main motor, the MLOCK* signal goes '1'.

If the main motor drive signal (MMD) remains '1' and the MLOCK*=0 remains unchanged for about 1 sec, the DC controller identifies a main motor error and stops the main motor and, at the same time, indicates 'E010'.

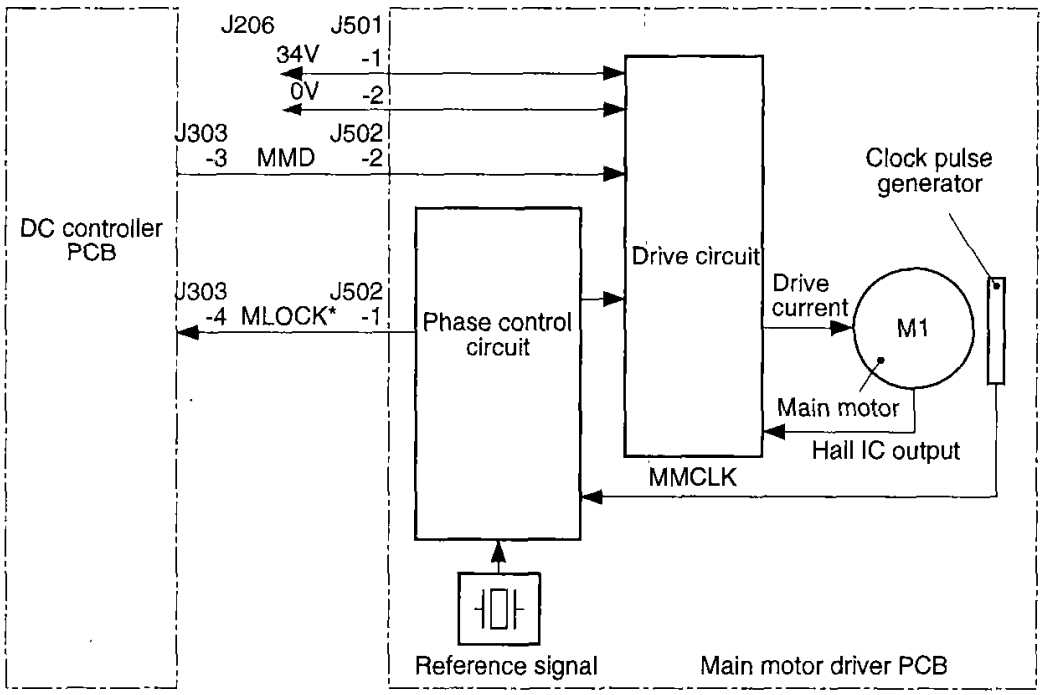

Figure 3-112

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H. Basic Sequence of Operations (2 copies continuous, AE)

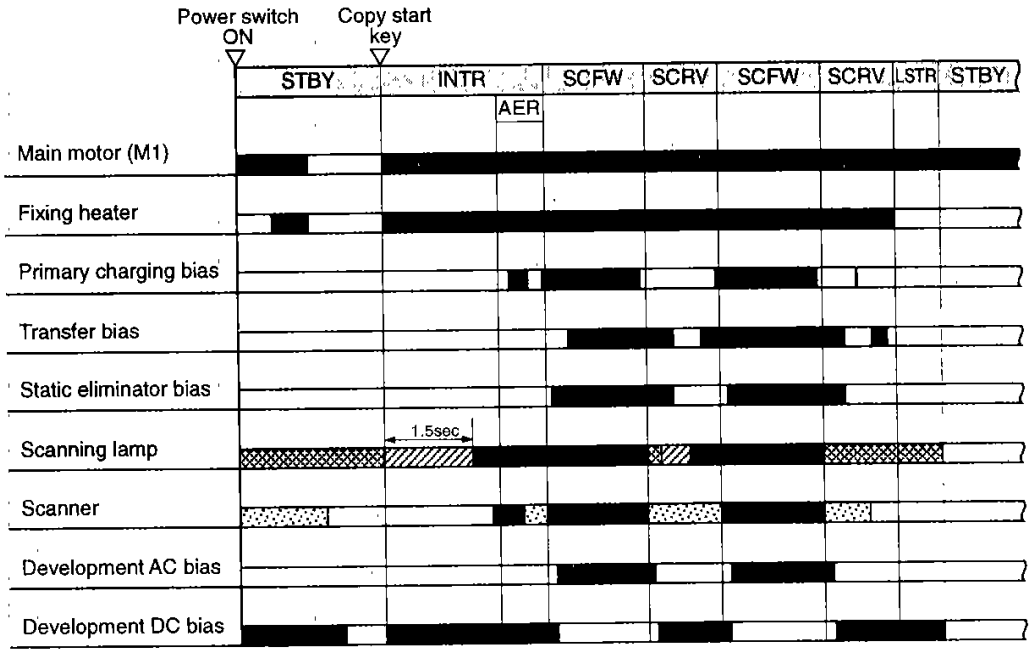

Figure 3-113

	Period	Description	Remarks
STBY (standby)	• Between when LSTR is over and when the Copy Start key is pressed or the Power switch is pressed. • Between when the Power switch has been pressed and when the Copy Start key is pressed.	Until the Copy Start key or another operation key is pressed.	• Upon completion of LSTR, the indications on the control panel return to indications for standard mode after 2 min.
INTR (initial rotation)	For at least 1 sec after the Copy Start key has been pressed.	The drum sensitivity is stabilized in preparation for a copy run.	
AER (AE rotation)		The scanner is moved about 65 mm forward and in reverse to measure the density of the original.	AE mode only.
SCFW (scanner forward)	While the scanner is moving forward. • The distance of forward travel varies depending on the cassette size and reproduction ratio. • The distance of reverse travel varies depending on the selected reproduction ratio.	The scanning lamp illuminates the original, and the reflected optical image is projected on the photosensitive drum through mirrors and lenses.	
SCRV (scanner reverse)	While the scanner is moving in reverse.	The scanner is returned to the home position in preparation for the next copy run.	The registration signal is generated to move the copy paper to the transfer assembly.
LSTR (last rotation)	Between when SCRV is over and when the copy paper moves past the delivery sensor.	The surface of the photosensitive drum is cleaned using static electricity as post treatment.	The last copy is discharged.

Table 3-101

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II. EXPOSURE SYSTEM

A. Varying the Reproduction Ratio

The reproduction ratio across the photosensitive drum is varied by the lens drive system; on the other hand, the ratio around the drum is varied by the scanner drive system.

The lens drive system uses a zoom lens; as shown in Figure 3-201, the position and focal distance of the lens are changed to vary the reproduction ratio across the photosensitive drum.

The scanner drive system varies the reproduction ratio around the photosensitive drum by moving the No. 1 mirror relatively faster (reduction) or slower (enlargement) than the peripheral speed of the photosensitive drum.

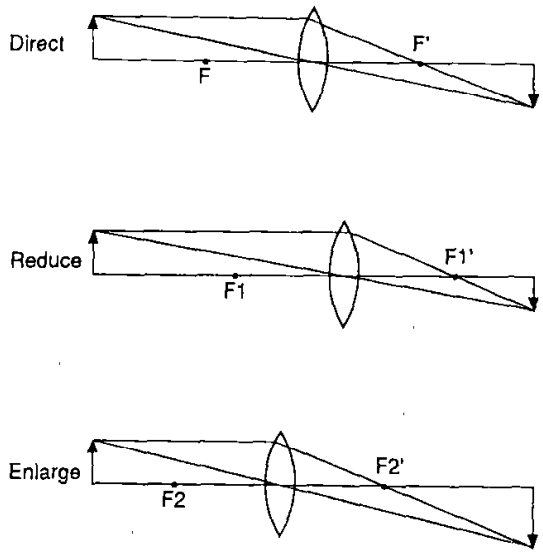

Figure 3-201

B. Lens Drive System

1. Outline

The lens drive system is driven by the lens motor (M3). The drive of the lens motor is transmitted to the blank exposure unit through a relay gear. (See p. 3-43.)

When the lens is moved, the solenoid (SL1) is turned on to engage the relay gear with the lens gear; when the lens motor rotates in the direction of the arrow in this condition, the lens is moved in the direction of enlargement (←) by the work of the relay lens gear and lens cable.

The blank exposure shutter, on the other hand, moves according to the distance traveled by the lens for reduction, thereby blanking (whiting) out the areas on both ends of the copy.

The copier's scanner lens home position sensor (PS2) is located at the center of the scanner lens drive rail so that the scanner lens home position may be detected early upon power-on, thereby speeding up the generation of the first copy. In addition, the scanning lens moves to the appropriate position in response to a press on each ratio button, thereby shortening the time it takes to generate the first copy.

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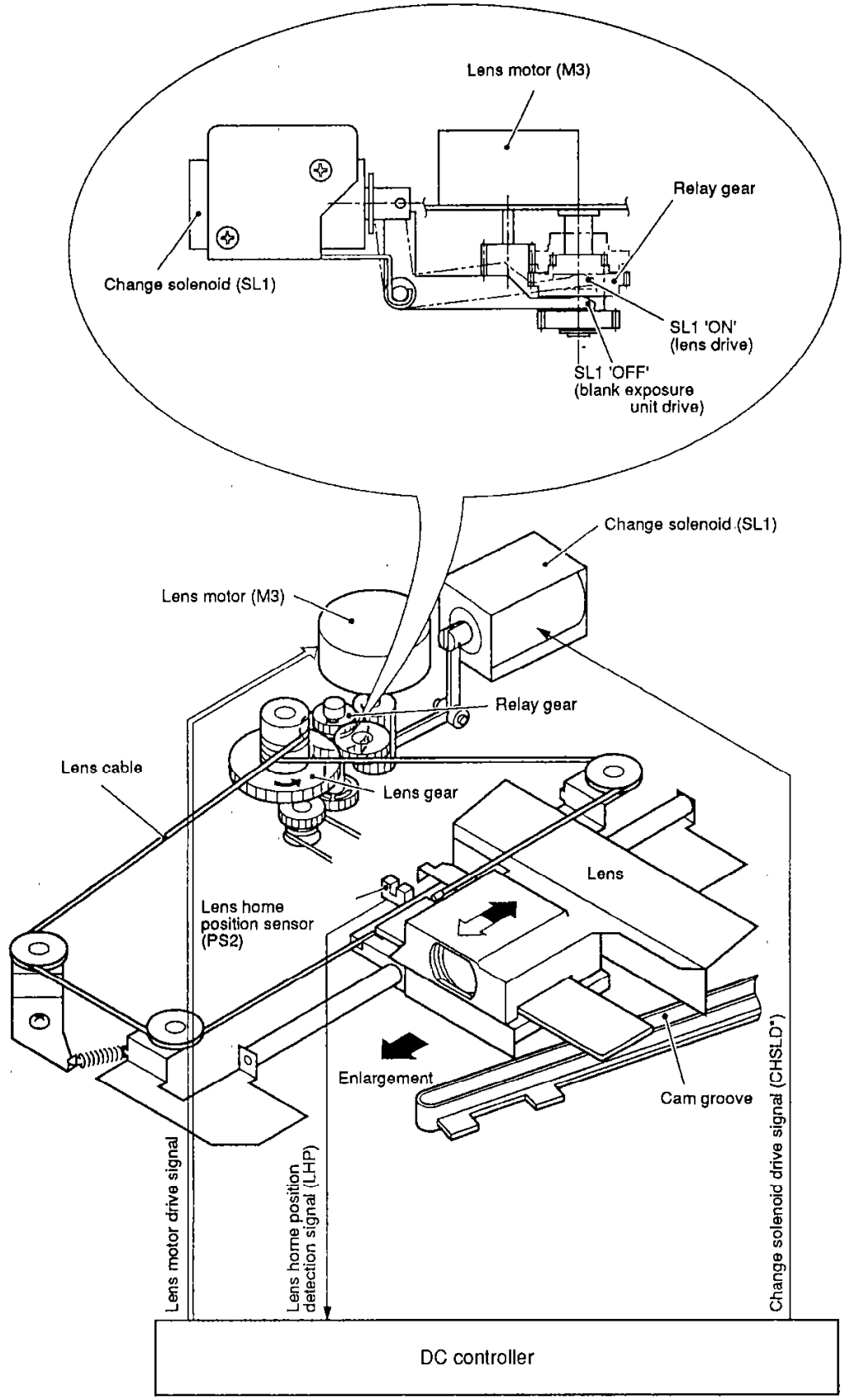

Figure 3-202

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2. Lens Motor Drive Circuit

The lens motor (M3) is a stepping motor and rotates in response to drive power LNSC-A and LNSC-B and pulse signals LNSA, LNSA*, LNSB, and LNSB*.

While the lens motor is rotating, the motor is driven by 34V to move the lens.

When the lens motor is at rest, 5 V is continuously applied to the motor so as to prevent displacement of the lens.

a. Keeping the Lens Motor Stationary

- LNSC-A=0
  when LNSC-B=0,
  └→ The motor drive voltage switching circuit switches to the 5V side.
  └→ 5V is supplied to the motor to retain stationary state.

At the time, all LNSA, LNSA*, LNSB, and LNSB* are caused to go '0', thereby stopping and retaining the motor stationary.

b. Driving the Lens Motor

- LNSC-A=1
  LNSC-B=1
  └→ The motor drive voltage switching circuit switches to the 34V side.
  └→ 34 V is supplied to the motor.

At the time, pulses are applied to each phase in sequence to rotate the motor.

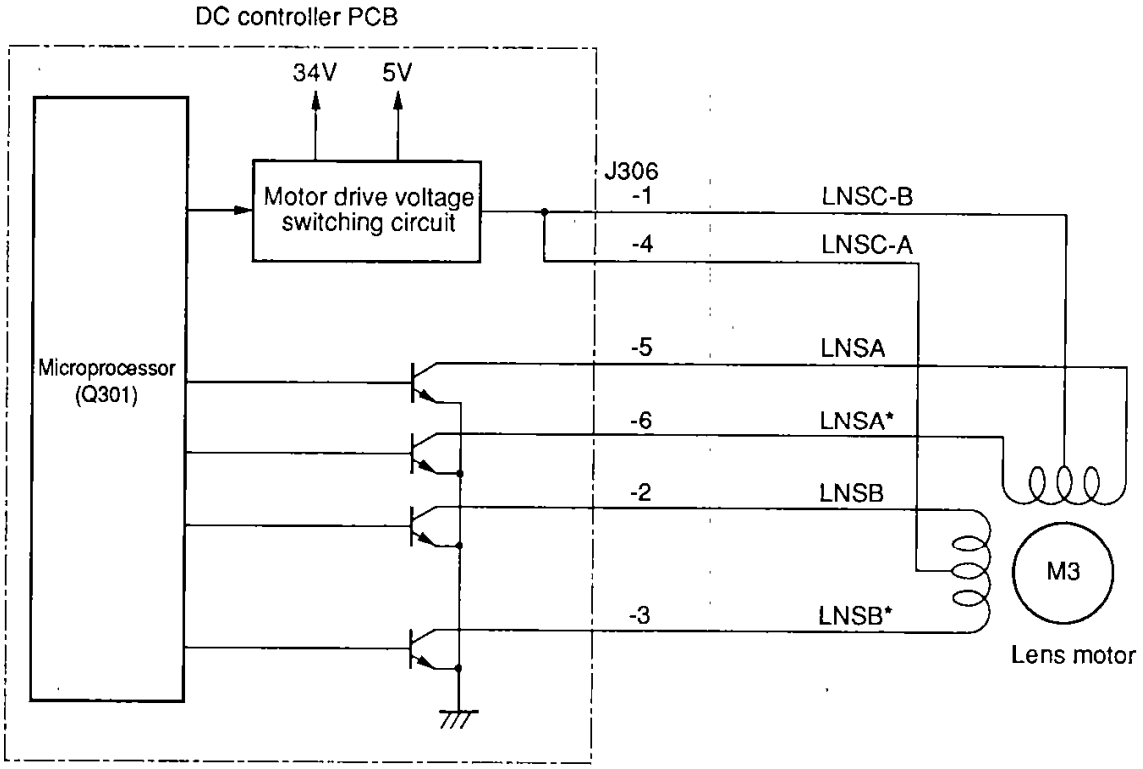

Figure 3-203

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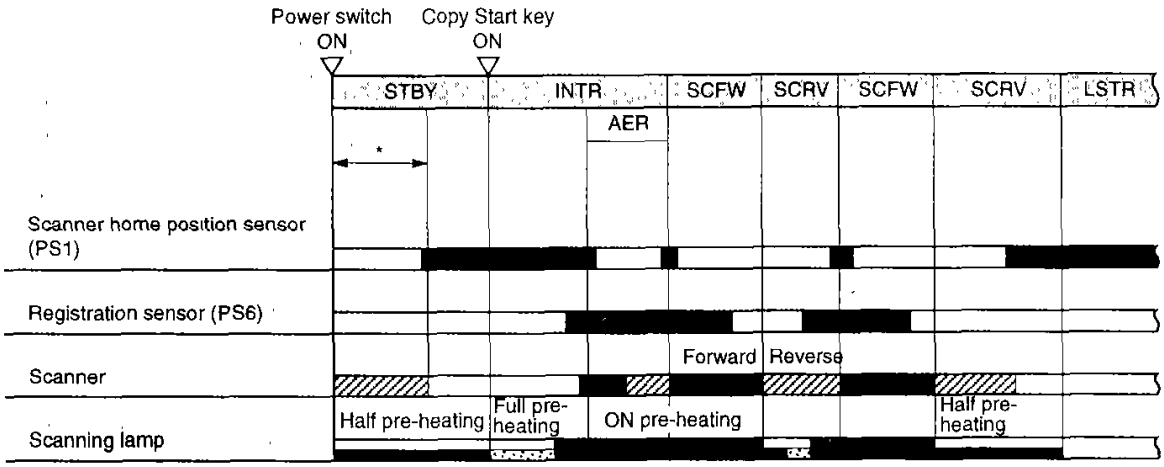
3. Basic Sequence of Operations (lens drive system; non-Direct)

When a specific reproduction ratio is selected, the lens always returns to the home position before moving to the position appropriate to the selected ratio. This also holds true when the reproduction ratio is reset to Direct.



*Unless it is at the home position already, the scanner returns to the home position at power-on.

Figure 3-204

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C. Scanning Drive System

1. Outline

The scanner drive system is driven by the scanner motor (M2). The scanner motor changes the direction of its rotation between when the scanner moves forward and when it moves in reverse; the speed of its rotation varies according to the selected reproduction ratio. However, the speed of its rotation remains constant regardless of the reproduction ratio when the scanner is moving in reverse; 2. 5 times as fast as when the scanner is moving forward.

The distance traveled by the scanner varies according to the length of copy paper and the selected reproduction ratio.

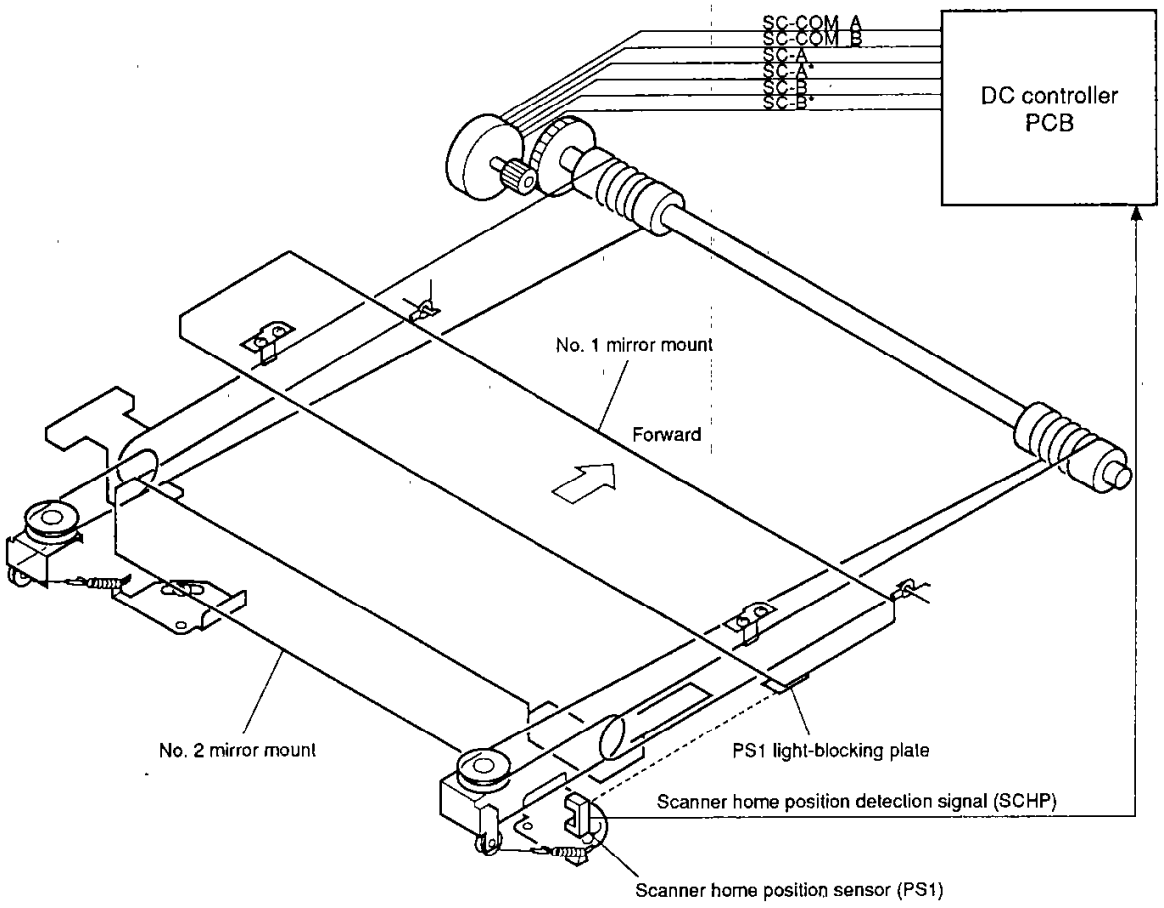

Figure 3-205

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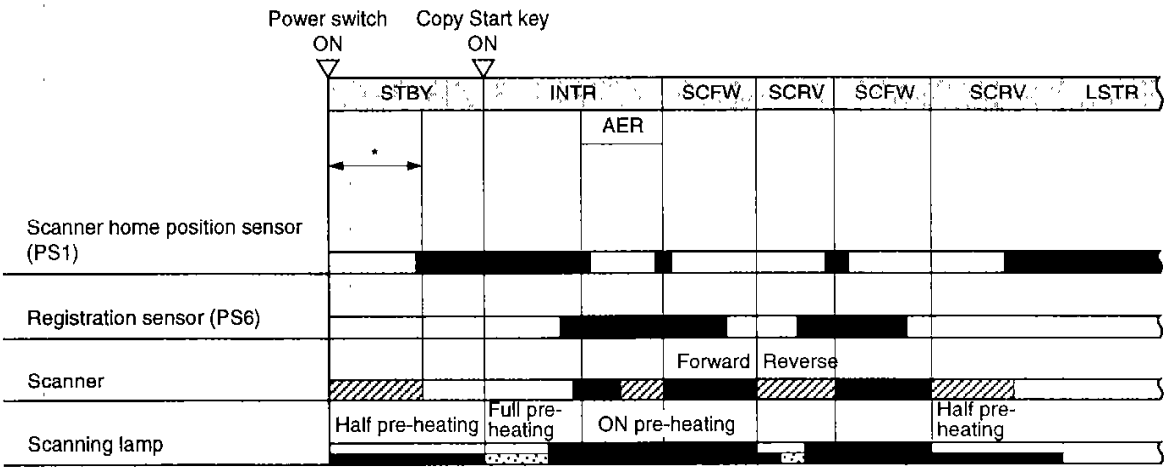
2. Relationship between the Scanner Sensor and Signals

Scanner sensor	Signal	Scanner		Description
		Forward	Reverse	
PS1 (scanner home position sensor)	SCHP	↓		Registration clutch turns on.
			↑	After 0.1 sec, the scanner stops moving in reverse.

Table 3-201

Reference:
The registration clutch is turned on in response to a press on the Copy Start key or when the scanner starts to move forward.

3. Basic Sequence of Operations (scanner)



*Unless it is at the home position already, the scanner returns to the home position at power-on.

Figure 3-206

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4. Driving the Scanner Motor

a. Outline

The scanner motor (M2) is a 4-phase control stepping motor. The direction and the speed of the scanner motor (M2) are switched by controlling the output timing of drive power SC-COMA and SC-COMB and pulse signals A, A*, B, and B*.

b. Mechanism

The microprocessor (Q301) on the DC controller PCB receives such instructions as on copy mode and reproduction ratio from the control panel circuit; in response, it sends drive pulses to the scanning motor (M2) through the motor drive circuit.

The scanner motor is a 4-phase control stepping motor, and is used to control the sequence of drive pulses (SC-A through SC-B*) and frequency, thereby controlling the direction of scans and speed.

The motor drive voltage ON/OFF switching circuit supplies or deprives the motor with or of power, thereby controlling the motor drive.

The current switching control circuit sets the current that flows through the motor according to the revolution, and the motor driver circuit controls the constant current according to the value that has been set.

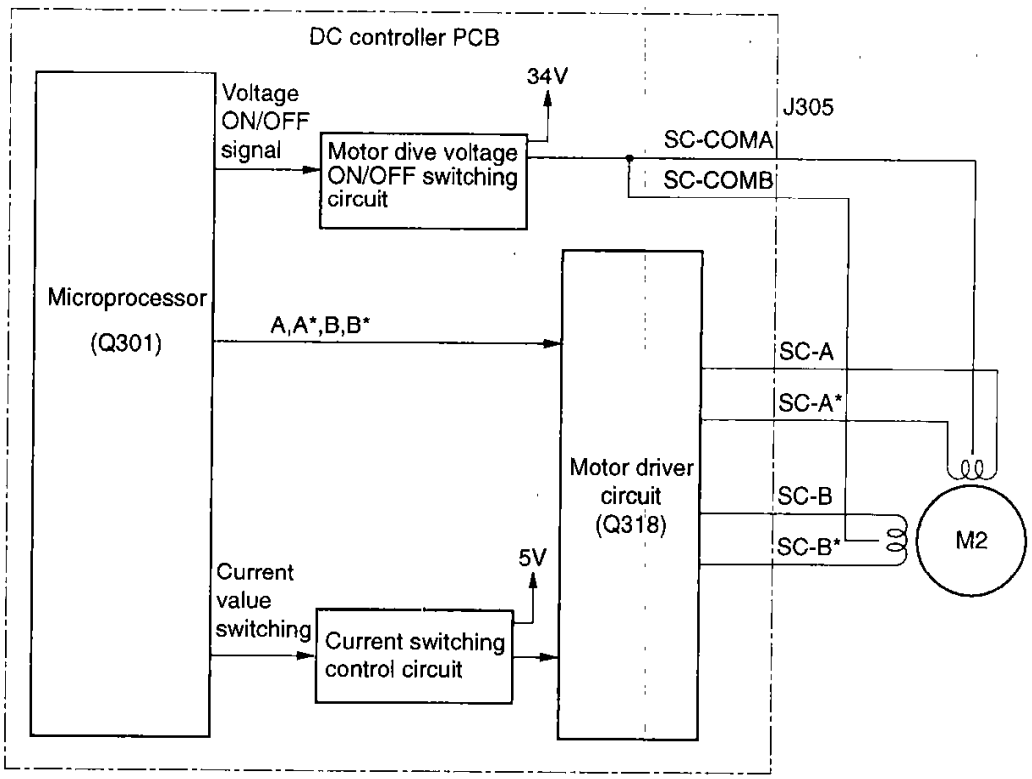

Figure 3-207

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D. Scanner Operations in Page Separation Mode (non-AE, page separation, A4, 2 copies)

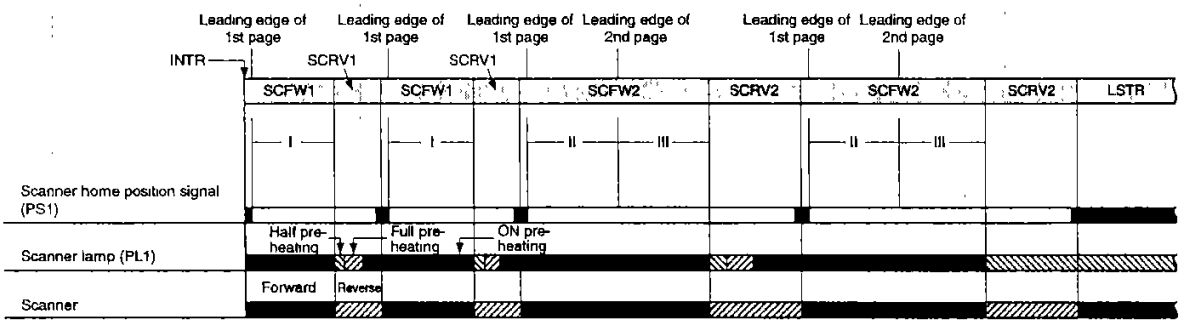

Figure 3-208

I, II, and III shown in Figure 3-208 are controlled by the microprocessor on the DC controller PCB with reference to the scanner home position signal (falling edge of SCHP) of the first original.

The microprocessor determines the distance to be traveled by the scanner according to the size of the selected cassette.

I, II: The distance traveled by the scanner is determined by the reproduction ratio and cassette size.

III: The copier does not have a mechanism that detects the size of originals; for this reason, control for page separation is exerted with reference to the size of the cassette.

If the distance traveled by the scanner forward (II in Figure 3-208) exceeds 216 mm (approx.), the copier assumes a point corresponding to 216 mm to be the leading edge of the second page.

The size of originals is checked only if an ADF (option) is installed.

The microprocessor identifies the result of dividing the identified size by 2 as the center of the original and operates the scanner assuming that the center represents the leading edge of the second original.

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III. IMAGE FORMATION SYSTEM

A. Outline

Figure 3-301 shows the basic construction of the copier's image formation system, whose main functions are as follows:

- scanning lamp control
- primary charging control
- transfer charging control
- separation static eliminator control
- developing bias control
- blank exposure lamp control

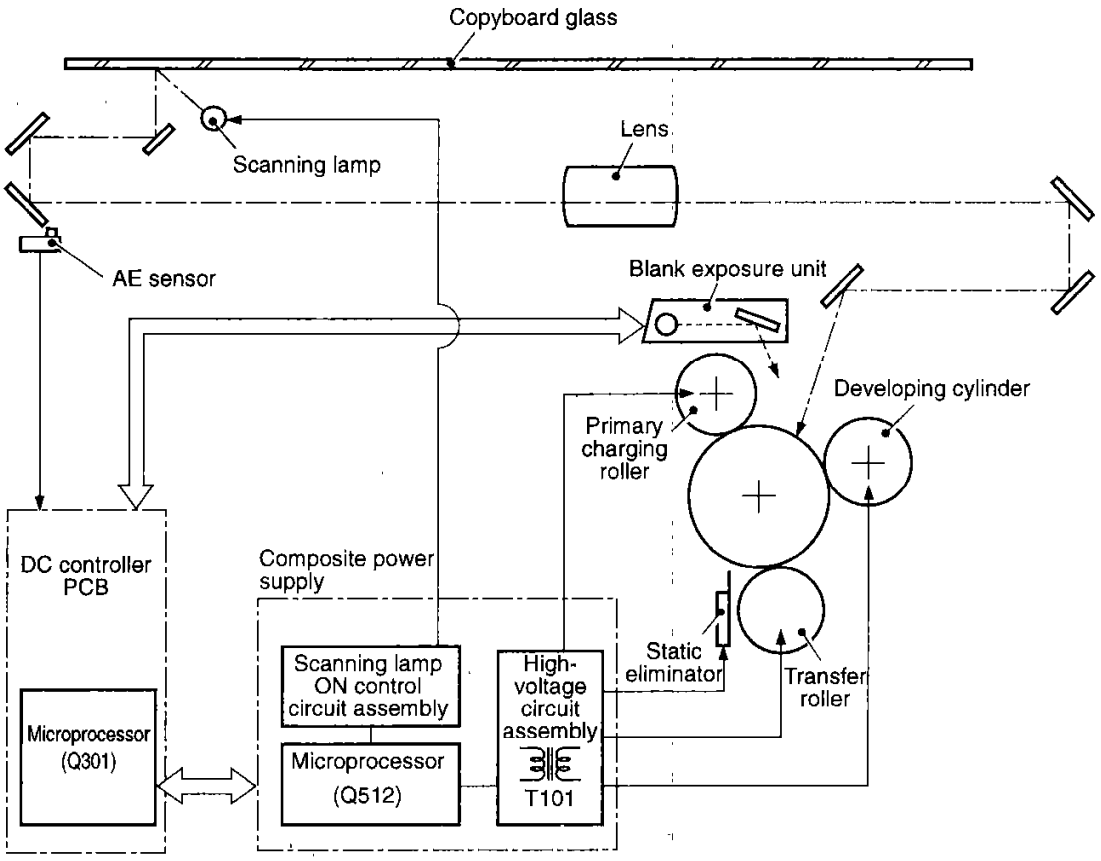

Figure 3-301

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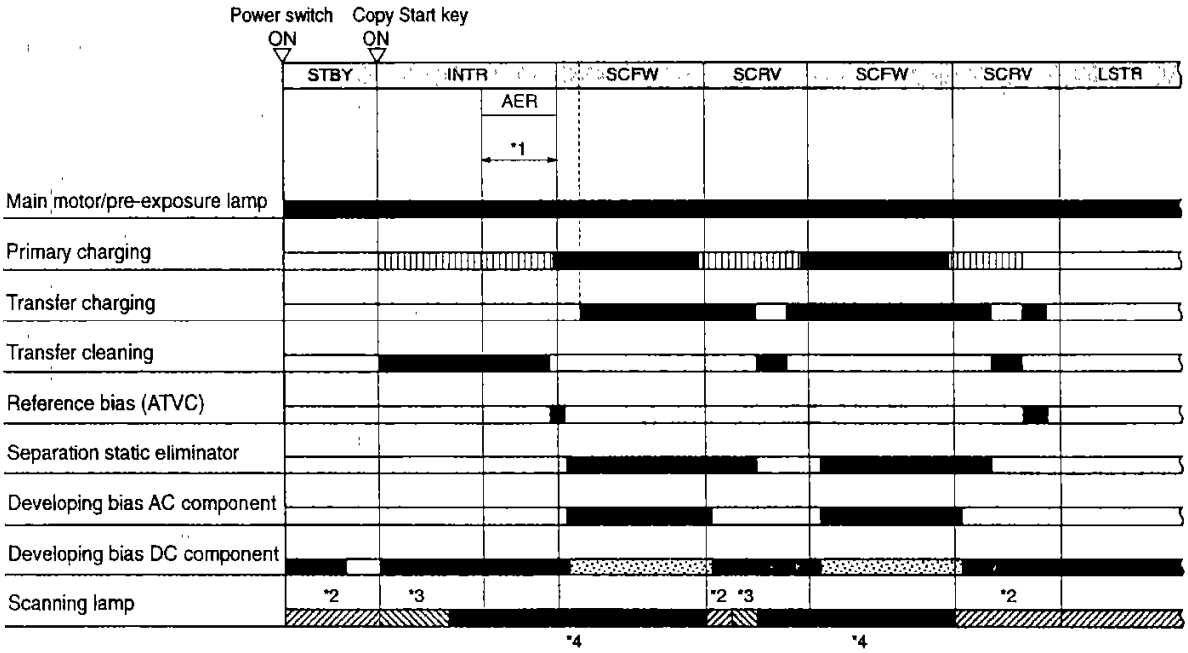
B. Basic Sequence of Operations (image formation system)



1 AE only.
2 half pre-heating control.
3 full pre-heating control.
4 ON pre-heating control.

Figure 3-302

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C. Controlling the Scanning Lamp

1. Outline

Figure 3-303 shows the circuit that controls the scanning lamp; the circuit has the following functions:

- turns on and off the scanning lamp.
- controls scanning lamp pre-heating operation.
- controls scanning lamp intensity.
- controls the scanning lamp heater.

The copier's scanning lamp is a fluorescent lamp.

In general, a fluorescent lamp is low in intensity immediately after power-on, gradually increasing in intensity as time passes, without control; in particular, it takes a long time before the intensity stabilizes in a low temperature environment.

If the ambient temperature drops below 15°C, the copier may enter and remain in wait state before a specific intensity can be obtained. To prevent this from occurring, a fluorescent lamp is provided for installation in low temperature environments.

To ensure that the lamp exposes an original at a stable intensity, a fluorescent lamp adjusting sensor is used to monitor the intensity of the lamp during copying operation, thereby controlling it to a specific value.

In addition, half pre-heating is executed between power-on and a press on the Copy Start key so as to ensure that the lamp reaches its optimum intensity within a short period of time after a press on the Copy Start key; thereafter, full pre-heating is performed. (See Figure 3-304.)

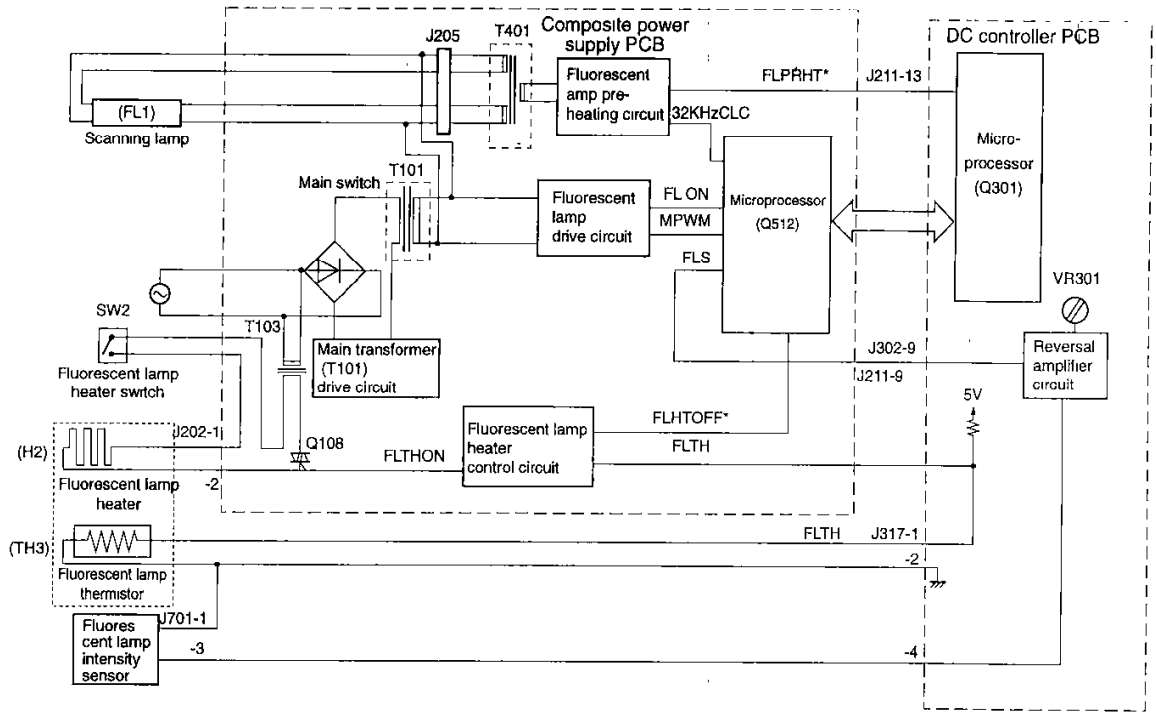

Figure 3-303

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2. Turning On and Off the Scanning Lamp

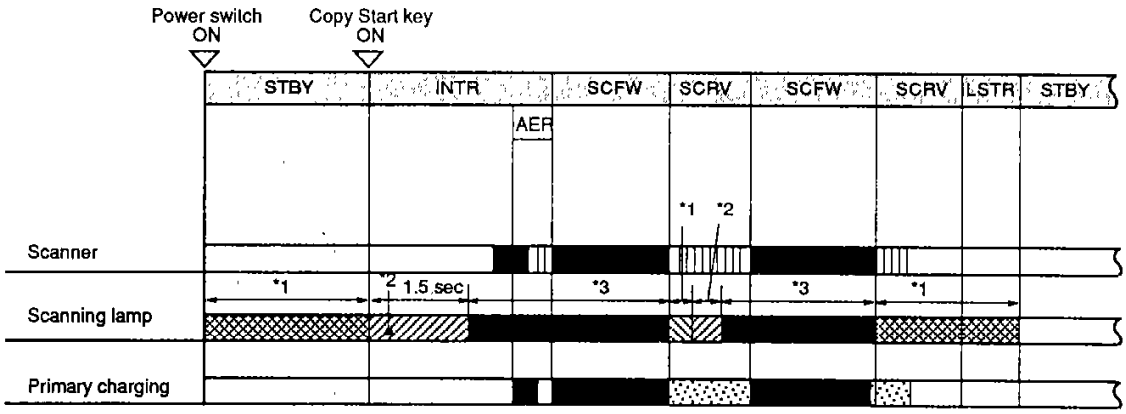
The microprocessor (Q301) on the DC controller PCB exerts control so that the microprocessor (Q512) on the composite power supply PCB generates the scanning lamp ON signal (FLON)=0 (pulse signal, 1 kHz). At the time, the fluorescent lamp drive circuit applies the output of the secondary side of the transformer (T101) to the scanning lamp (FL1), thereby allowing current to flow through the scanning lamp and causing the lamp to turn on at a high frequency (about 120 kHz).

3. Pre-Heating Control (scanning lamp)

The copier exerts four modes of control; namely, half pre-heating, full pre-heating, ON pre-heating I, and ON pre-heating II.

These modes of control are executed by the microprocessor (Q301) on the DC controller by varying the duty ratio of the fluorescent lamp pre-heat signal (FLPRHT; pulse) of 5 kHz to suit each pre-heat control mode sent to each scanning lamp pre-heat circuit. Based on the signal, the scanning lamp pre-heat circuit modulates the amplitude of the signal (32 kHz); in response, the secondary side of the transformer (T401) turns on to allow the fluorescent lamp pre-heat current to flow, thereby starting pre-heating operation. (For the sequence of operations, see Figure 3-304.)

4. Sequence of Operations (scanning lamp pre-heating control; AE, A4, continuous, 2 copies)



1 half pre-heating control.
2 full pre-heating control.
3 ON pre-heating I or II control.

Figure 3-304

■ Input Signals from the DC Controller to the Composite Power Supply PCB

	Half pre-heating	Full pre-heating	Fluorescent lamp ON I*	Fluorescent lamp ON II*
Duty ratio (5 kHz)	25.9 %	60 %	44.4 %	55 %
Filament voltage	2.5Vrms	4.5Vrms	3.6Vrms	4.1Vrms

*ON duty ratio of FLOW signal (in relation to 1kHz):
40% or more ..... ON I
less than 40% ..... ON II

Table 3-301

■ Half Pre-Heating Control (between press on Power switch and press on Copy Start key; part of scanner reverse travel)

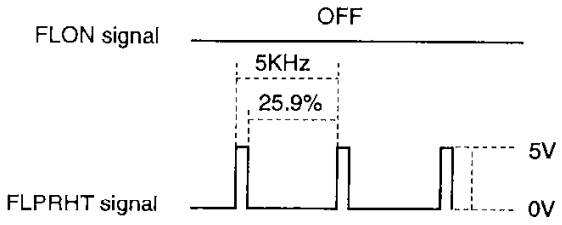


Figure 3-305

■ Full Pre-Heating Control (initial rotation, last rotation, part of scanner reverse travel)

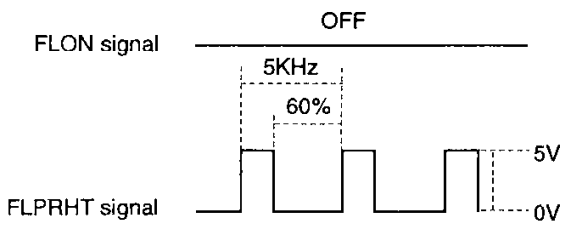


Figure 3-306

■ Scanning Lamp ON Pre-Heating Control (during copying operation I)

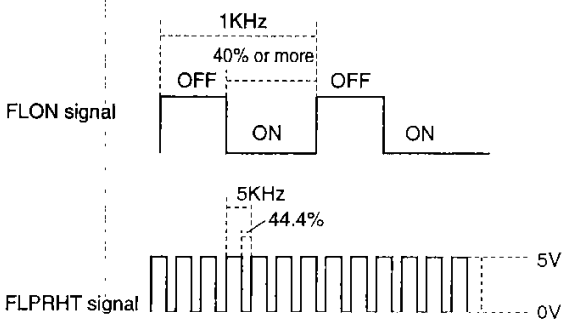


Figure 3-307

5. Controlling the Intensity of the Scanning Lamp (FL1)

- If the intensity of the fluorescent lamp is too low at power-on,
  The starting power of the intensity adjustment sensor lowers, and the fluorescent lamp intensity adjustment signal (FLS) of the amplifier circuit on the DC controller increases.
  In response to the signal, the microprocessor (Q512) on the composite power supply PCB reduces the duty ratio, thereby increasing the ON time of the FLON signal.
  The current flows through the filament of the fluorescent lamp when both the MPWM signal (150 kHz) and the FLON signal (1 kHz) are on.
- If the intensity of the fluorescent lamp is too high at power-on,
  The starting power of the intensity adjustment sensor rises, and the fluorescent lamp intensity adjustment signal (FLS) of the amplifier circuit on the DC controller PCB decreases. In response to the signal, the microprocessor (Q512) on the composite PCB increases the duty ratio, thereby decreasing the ON time of the FLON signal.

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Caution:
Gain Adjustment for the Intensity Adjustment Sensor (VR301)
If you replaced the intensity adjustment sensor or the scanning lamp (fluorescent lamp, FL1), or the DC controller PCB, you must always perform gain adjustment for the intensity adjustment sensor using VR301 on the DC controller PCB. (See the Service Handbook.)

■ *Input to the Reversal Amplifier Circuit (if the intensity increased gradually)*

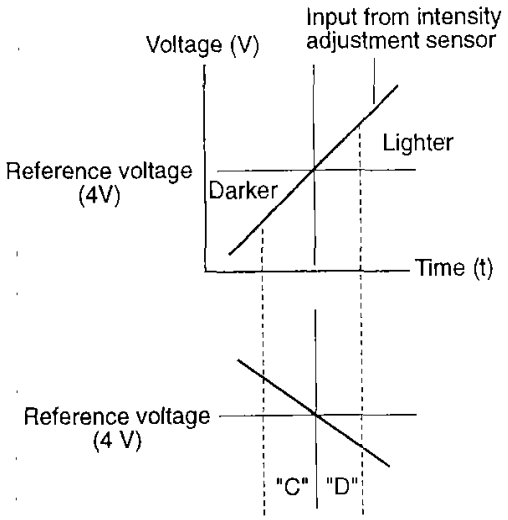

Figure 3-308

■ Changes in the Duty Ratio of the FLON signal

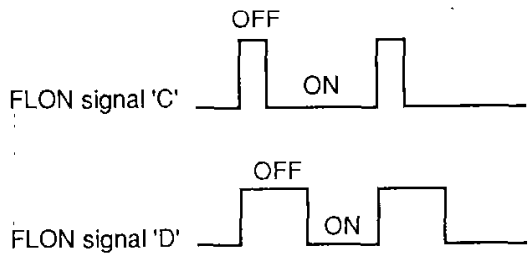

Figure 3-309

6. Controlling the Fluorescent Lamp Heater

As the temperature around the scanner increases, the resistance of the fluorescent lamp thermistor (TH3) lowers, thereby lowering the voltage of the fluorescent lamp thermal signal (FLTH). Based on the voltage, the fluorescent lamp heater control circuit on the composite power supply PCB turns on and off the fluorescent lamp heater drive signal (FLTHON).

You can force the fluorescent heater off by turning off the scanning lamp (fluorescent lamp) heater switch (SW2) during the months in which the heater is not needed.

7. Fluorescent Lamp Automatic Correction Control (ALVC control)

The copier executes control (ALVC control) that automatically corrects the scanning lamp on voltage to make up for the change that otherwise could occur as a result of deterioration of the photosensitive drum.

8. Fluorescent Lamp Protection Mechanism (200V model only)

If the fluorescent lamp fails or flickers continuously after copying is started, the microprocessor on the DC controller increases the application voltage to turn on the lamp properly.

This, however, imposes an excessive voltage to the fluorescent lamp, speeding up its deterioration. To prevent such a problem, the DC controller turns off the power when an error in the application voltage is detected on the composite power supply PCB (In the case of the 100V model, 'E220' is indicated.).

Reference:
If the same problem occurs when the power is returned, the fluorescent lamp may be faulty. Try replacing it.

Warning:
Do not execute operations that turn on the fluorescent lamp (coying, service mode) without installing the fluorescend lamp.

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D. Controlling the Primary Charging Roller Bias

1. Outline

Figure 3-310 shows the circuit that controls the voltage applied to the primary charging roller; the circuit has the following functions:

- turns on and off the primary charging roller bias.
- controls the primary charging roller bias to a constant voltage.
- switches the application voltage level for the primary charging roller bias.
- switches the application voltage level for the primary charging roller bias.
- corrects the scanning lamp on voltage level

The main transformer (T101) is driven by the drive signal (MPWM) generated by the main transformer (T101).

The main transformer (T101), further, is used also as the high voltage transformer for the DC power supply and others in addition to providing the above functions.

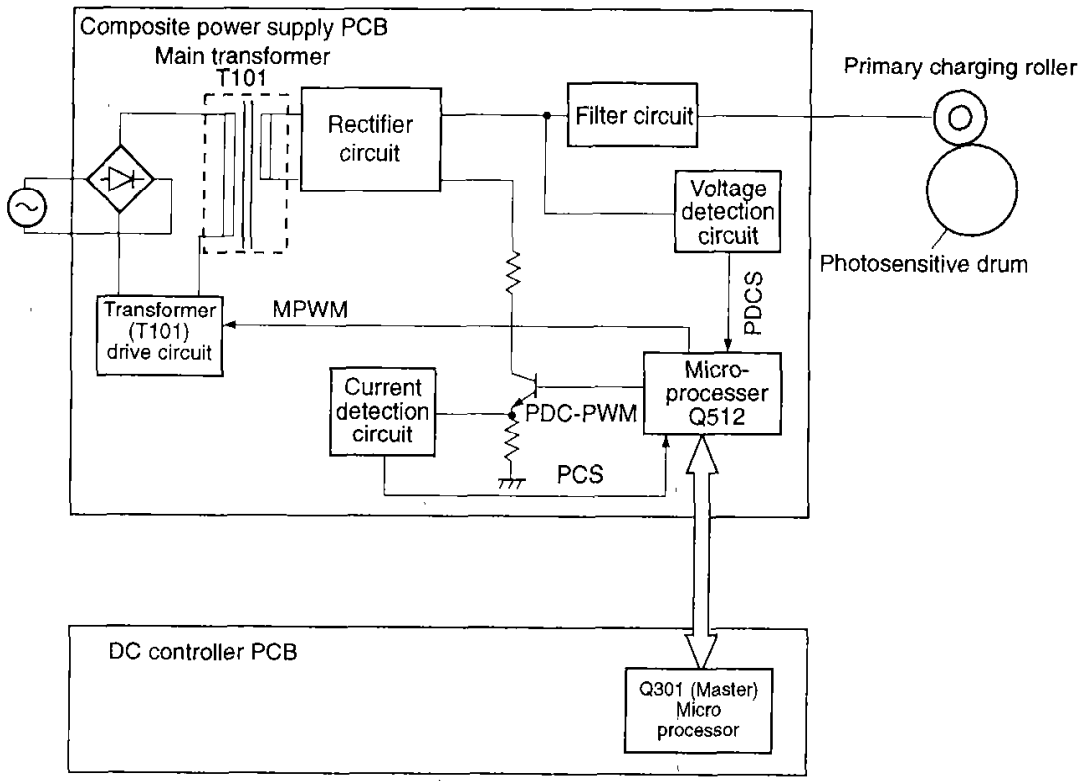

Figure 3-310

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2. Turning On and Off the Primary Charging Roller Bias

The microprocessor (Q512) on the composite power supply PCB generates the PDCPWN signal (pulse signal) under the control of the microprocessor master (Q301) on the DC controller PCB. In response to the signal, the secondary side of the main transformer (T101) turns on to apply a primary charging roller bias.

The main transformer (T101) is driven by the drive signal (MPWM) from the microprocessor (Q512). The main transformer (T101) is also used as the high-voltage transformer for the DC power supply and other loads.

3. Controlling the Primary Charging Roller Bias to a Constant Voltage

While a bias voltage is being applied to the primary charging roller, the microprocessor (Q512) on the composite power supply PCB reads the PDCS signal (analog signal) from the voltage detection circuit to control the PDCPWM signal so that the output voltage is maintained at a specific level.

4. Switching the Primary Charging Roller Bias Application Voltage Level

The copier applies a cleaning bias to the transfer roller during initial rotation (INT), while the scanner is moving in reverse (SCRV), and during last rotation, thereby cleaning the transfer charging roller. (See p. 3-46.)

To enhance the result of cleaning by the cleaning bias and to prevent drum memory caused by the cleaning bias, a cleaning primary charging roller bias is applied during initial rotation and while the scanner is moving in reverse.

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5. Application Voltage Level (APVC) for the Primary Charging Roller and Scanning Lamp On Voltage Level Automatic Correction

Changes in the static latent image could cause the quality of copies; such changes, in turn, may be attributed to the following factors:

- changes in the drum sensitivity
- changes in the charge volume of the primary charging roller.

These changes occur as a result of changes in the environment in which the copier is installed (temperature, humidity), deterioration of parts, or wear and dirt on parts.

In the case of the copier, the *light* potential (V_L) and *dark* potential (V_D) tend to increase, and the primary charging roller bias application voltage level is corrected (APVC control) to compensate for possible problems while at the same time executing scanning lamp on voltage level correction (ALVC control); specifically, the control serves to ensure constant *light* potential (V_L) and *dark* potential (V_D).

See the following for the flow of operations that occur after the power is switched on and during initial rotation:

- Flow

A constant voltage of about –1.46 kV is applied to the primary charging roller for about 1.5 sec.

↓

The current at the time is measured by the current detection circuit, and the result is sent to the microprocessor (Q512).

↓

The microprocessor (Q512), in turn, sends the result to the microprocessor (Q301) on the DC controller, which determines the application voltage for the primary charging roller bias based on the input.

Caution:
You must store the APVC value recorded on the label attached to the composite power supply PCB in service mode whenever you have replaced the composite power supply PCB. (See p. 3-83.)

Caution:
You must enter the APVC correction voltage setting recorded on the label attached to the front of the drum unit whenever you have replaced the drum unit. (See the Service Handbook.)

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E. Controlling the Transfer Roller Bias

1. Outline

The copier uses a direct transfer method by a roller to transfer images to paper. For this reason, its bias control differs from that of conventional copiers, which transfer images by corona charging.

The following three types of transfer roller bias are used; go through the descriptions for the function and output timing of each.

a. Transfer Bias

This bias corresponds to the transfer bias of conventional copiers, and is a negative voltage (constant voltage, –3.5 kV to –6.0 kVDC).

b. Cleaning Bias

Since the copier uses a direct transfer method, jams could cause toner on the photosensitive drum to deposit itself on the transfer roller.

To remove such deposits of toner, the copier applies a positive voltage (constant voltage, DC) at the following timing, thereby returning the toner from the transfer roller to the photosensitive drum.

Cleaning Bias Output Timing

- during initial rotation after a press on the Copy Start key
- while the scanner is moving in reverse (certain period)
- during last rotation (certain period)

c. Reference Bias (ATVC)

Changes in the environment or deterioration of the transfer roller can affect the resistance of the transfer roller, ultimately affecting the transfer efficiency.

To limit the changes in the image quality brought about by such changes in the transfer efficiency, the copier corrects the application voltage level of the transfer bias.

The transfer ATVC bias (constant current, –10 µA DC) is the bias applied to determine the correction value each time the Start button is pressed.

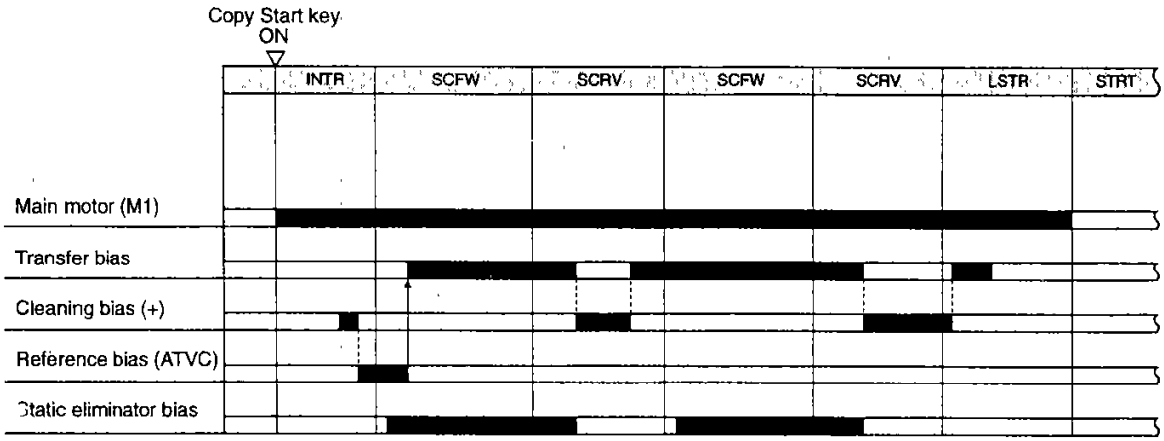

Figure 3-311

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Figure 3-312 shows the circuit used to control the foregoing three types of bias; the circuit has the following functions:

- turns on and off the transfer roller bias
- controls the transfer bias to a constant voltage
- controls the correction of the transfer bias voltage level

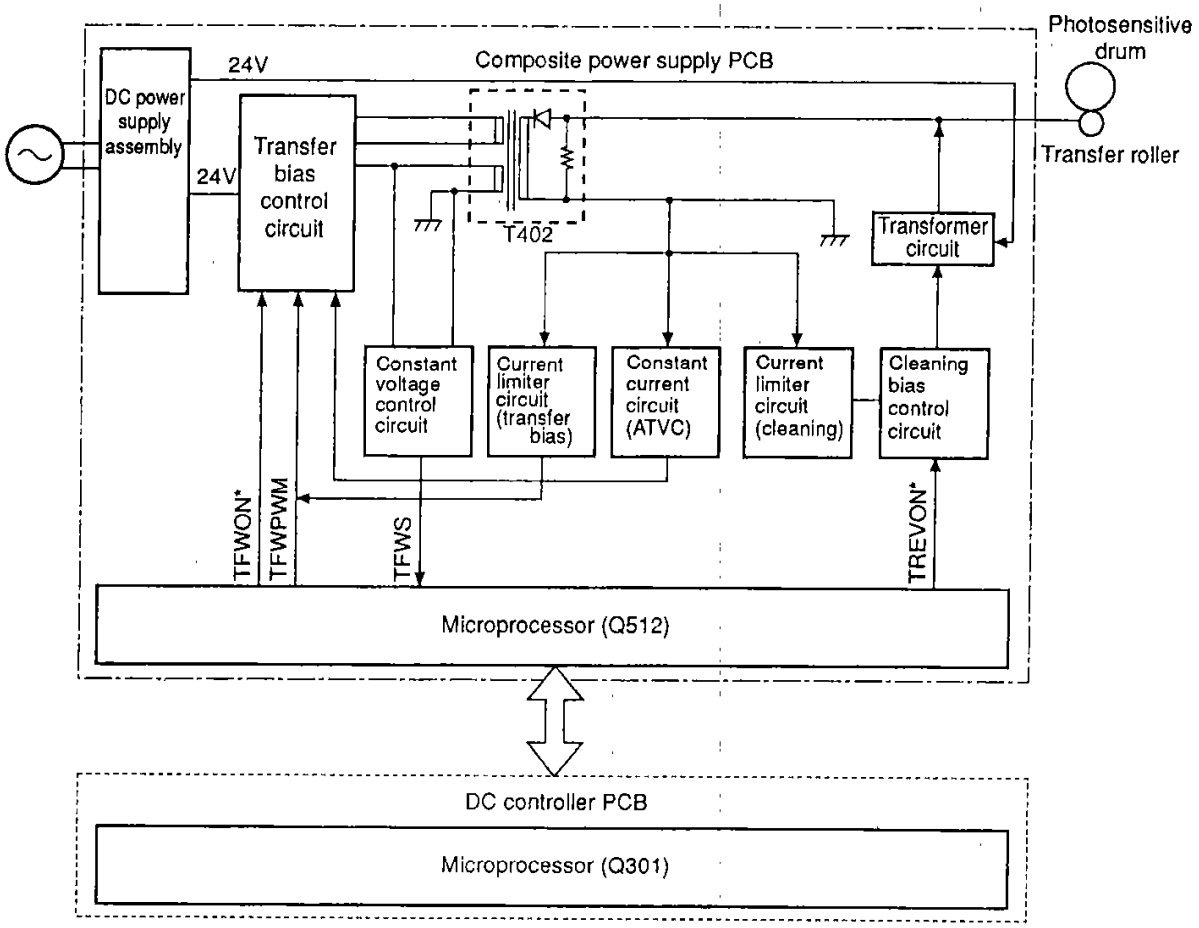

Figure 3-312

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2. Turning On and Off the Transfer Roller Bias

The TFWON signal is generated under the control of the microprocessor (Q512) on the composite power supply PCB. The signal causes the secondary side of the transfer transformer (T402) to turn on, thereby applying a DC bias to the transfer roller.

Table 3-302 shows combinations of signals that are used when determining the transfer roller bias.

	TREVON*	TFWON*	TFWPWM
Transfer bias output	OFF	ON	ON
Cleaning bias output	ON	OFF	OFF
Reference bias output (ATVC)	OFF	ON	OFF

Table 3-302

3. Controlling the Transfer Bias to a Constant Voltage

While the transfer DC bias is being generated, the microprocessor (Q512) on the composite power supply PCB reads the TFWS signal (analog signal) from the constant voltage control circuit and changes the duty ratio so that the application voltage is maintained at a constant level, thereby controlling the TFWPWM signal.

4. Controlling the Transfer Bias Voltage Level Correction (ATVC control)

To correct the changes in the transfer efficiency caused by changes in the environment or deterioration of the transfer roller, the application voltage level of the transfer bias is corrected automatically.

A constant current (–10 μA) is let to flow during initial rotation after a press on the Copy Start key.

The microprocessor (Q512) on the composite power supply PCB takes in the transfer roller application voltage at the time from the constant voltage control circuit, and sends the data to the microprocessor (Q512) on the DC controller; the DC controller, in turn, determines the level of the voltage to be applied to the transfer roller based on the data.

This control is executed only once during initial rotation immediately after a press on the Copy Start button; for this reason, the application voltage will never vary during continuous copying operation.

5. Current Limiter Circuit (transfer bias)

Should an overcurrent flow to the secondary side of the transformer (T402) while a transfer bias is being generated because of changes in the environment, the current limiter circuit exerts control so as to prevent any occurrence of a current which is 50 μA or more.

6. Current Limiter Circuit (cleaning bias)

Should an overcurrent flow to the secondary side of the transformer (T402) while a transfer bias is being generated, the current limiter circuit exerts control to prevent any occurrence of a current which is 10 μA or more.

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F. Controlling the Static Eliminator Bias

1. Outline

Figure 3-313 shows the circuit that controls the static eliminator bias; the circuit has the following functions:

- turns on and off the static eliminator bias and controls the voltage to a constant level
- switches the static eliminator bias voltage level

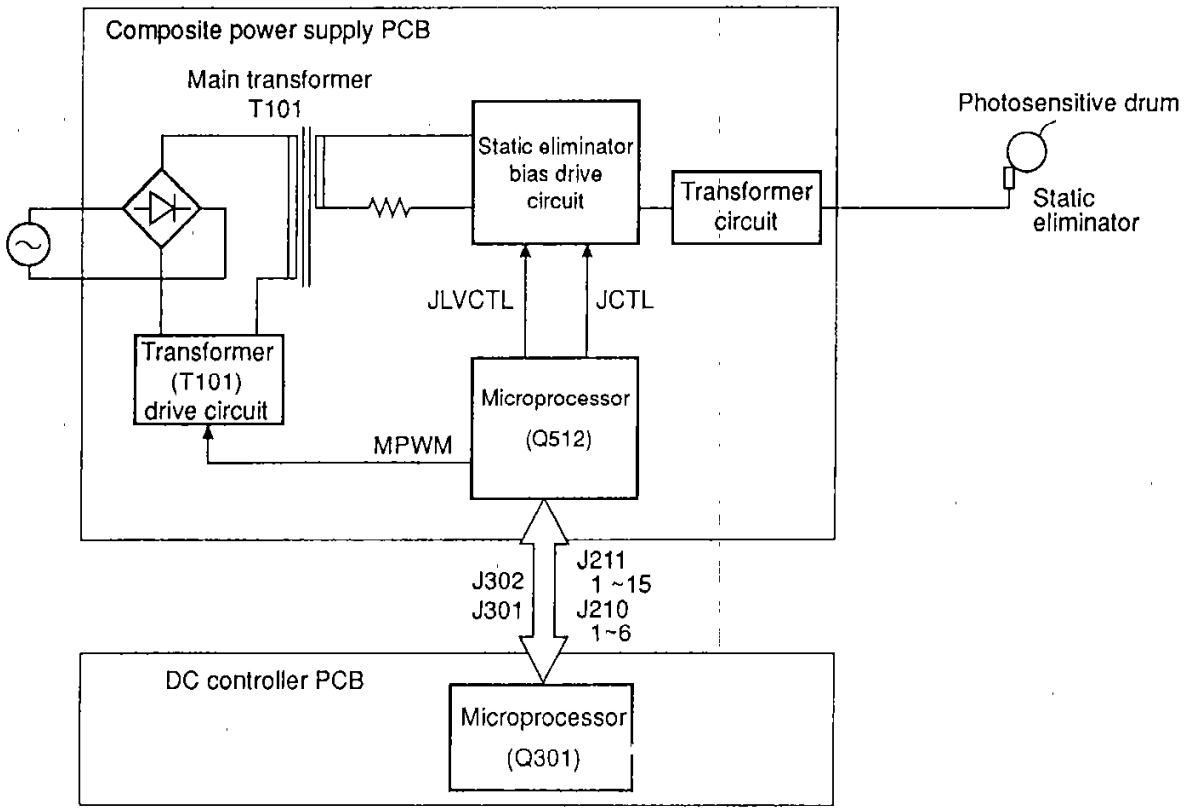

Figure 3-313

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2. Switching the Static Eliminator Bias Voltage Level

The microprocessor (Q512) on the composite power supply PCB generates the JCTL signal (analog signal) under the control of the DC controller PCB. In response, the secondary side of the main transformer (T101) turns on to generate a bias for the static eliminator with the help of the main transformer (T101).

The output of voltages (2.5 kV, 4.0 kV) is switched by the JLVCTL signal.

When the JCTL signal turns on, the drive circuit turns on to generate the static eliminator bias.

3. Ensuring Proper Separation of Thin Paper

Under some environmental conditions, thin paper can fail to separate at times.

To ensure proper separation, the voltage applied to the static eliminator may be permanently set to 4.0 kV.

To do this, use service mode No. 506 (separation static eliminator output voltage; see p. 3-81).

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G. Controlling the Development Bias

1. Outline

Figure 3-314 shows the circuit used to control the development bias; the circuit has the following functions:

- turns on and off the AC component of the development bias
- turns on and off the DC component of the development bias
- controls the voltage level of the DC component of the development bias
- controls the DC component of the development bias to a constant level

2. Turning On and Off the DC Component of the Developing Bias and Controlling the Voltage to a Constant Level

The microprocessor (Q512) on the composite power supply PCB generates the BPWM signal (pulse signal) under the control of the microprocessor master (Q301) on the DC controller PCB. In response, the secondary side of the main transformer (T101) turns on to apply the DC component of the development bias.

In addition, while the DC component of the development bias is being applied, the application voltage is taken in from the development DC bias voltage detection circuit in the form of the BIASS signal (analog signal) to exert control so that the output voltage is maintained at a constant level.

The main transformer (T101) is driven by the drive signal (MPWM) from the microprocessor (Q512). In addition to the foregoing functions, the main transformer (T101) is also used as the high-voltage transformer for the DC power supply and other loads.

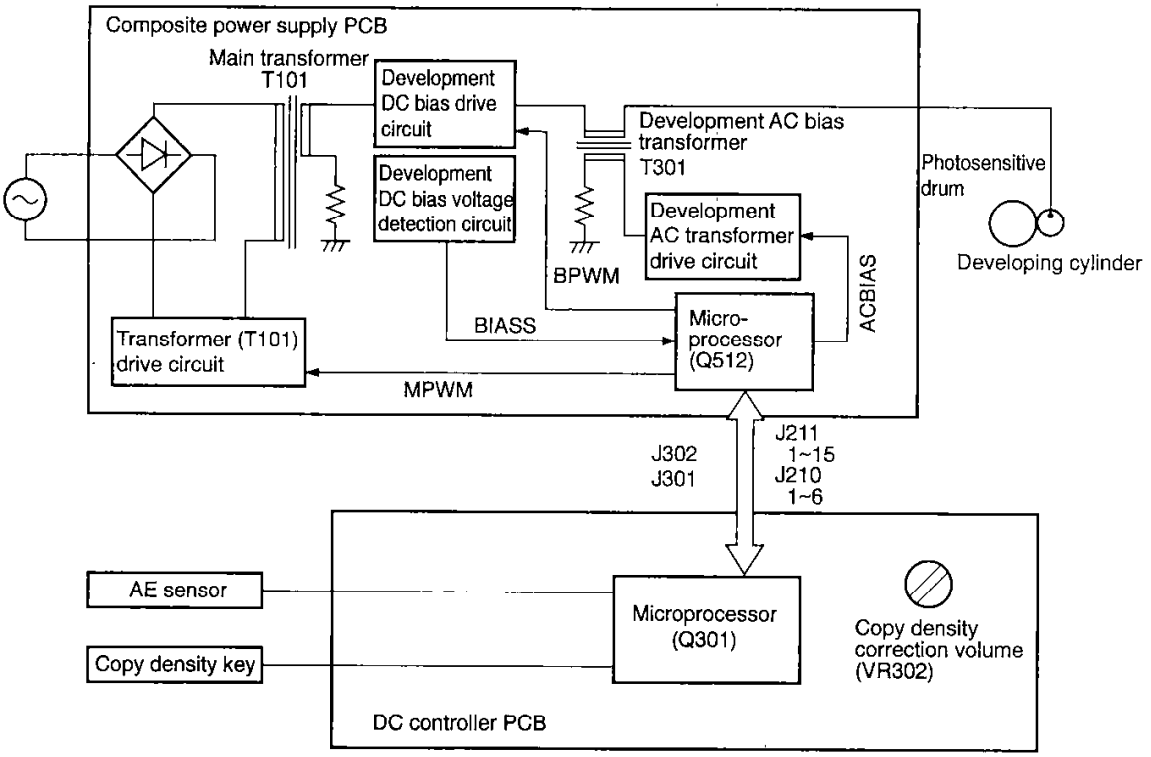

Figure 3-314

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3. Turning On and Off the AC Component of the Development Bias

The microprocessor (Q512) on the composite power supply PCB generates the ACBIAS signal (pulse signal) under the control of the microprocessor master (Q301) on the DC controller PCB. In response to the signal, the development bias AC component generating transformer (T301) turns on to add the AC component of the development bias to the DC component for application.

- application frequency 2400 Hz (approx.)
- application voltage 1300 Vp-p (approx.)

4. Controlling the Voltage Level of the DC Component of the Development Bias

The copier modifies the voltage level of the DC component of the development bias based on the following factors:

- setting of the Copy Density key
- output of the AE sensor
- position of the Copy Density Correction switch (SW301)

The copier controls so that the voltage of the DC component of the development bias varies between –80 and –560 V (in actual terms) by varying the output of the BPWM signal.

To prevent increases in the *light* potential (V_L) caused by deterioration of the photosensitive drum, the copier is equipped with a copy density correction volume. You may operate the volume (VR302) on the DC controller PCB to adjust the potential of the DC bias for any increase in V_L, thereby freeing the copies of fogging.

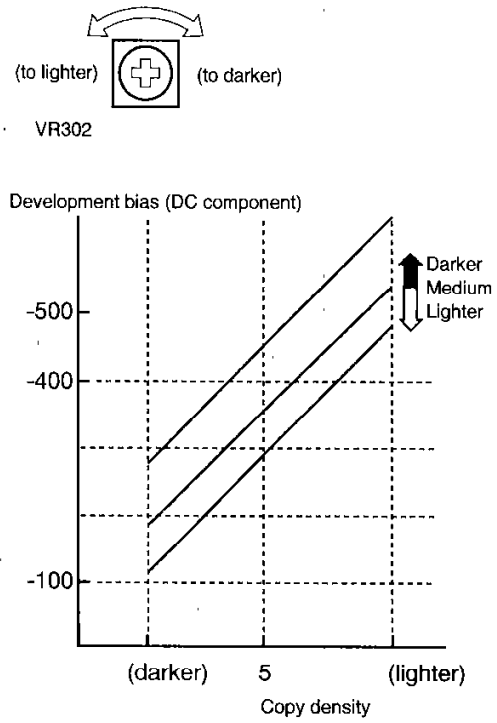


Figure 3-315

H. Automatic Control of Copy Density

1. Outline

The copier has an automatic density adjustment mechanism (AE), which automatically controls the DC component of the development bias according to the density of originals. As long as the original is more or less uniform in density, the AE mechanism varies the DC component of the development bias accordingly to ensure fogging-free copies.

The DC component controlled in AE mode is indicated in the copy density display of the control panel.

2. Control Method

During initial rotation (INTR), the scanning lamp (FL1) is turned on at a specific intensity and the scanner is moved forward about 65 mm to expose the original.

With the scanner in this position, the reflected light over the area shown in Figure 3-317 is measured by the AE sensor (photodiode), and the measurements are sent to the DC controller PCB.

In response, the DC controller PCB computes the optimum value of the development DC bias for copying operation, and generates the result to the microprocessor on the composite power supply. Figure 3-316 shows the changes in the DC component of the development bias caused by the changes in the density of an original.

The graph is based on the amount of exposure that brings optimum density without fogging when copies are made of a newspaper or a Test Sheet.

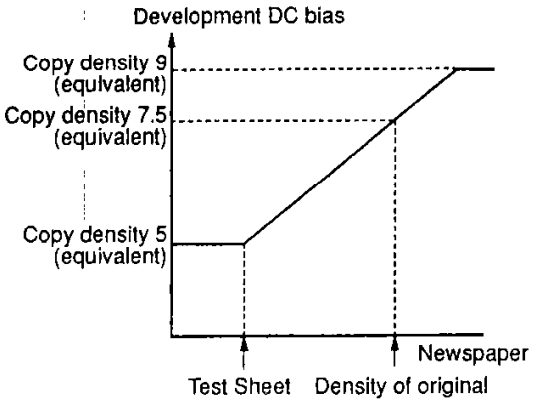
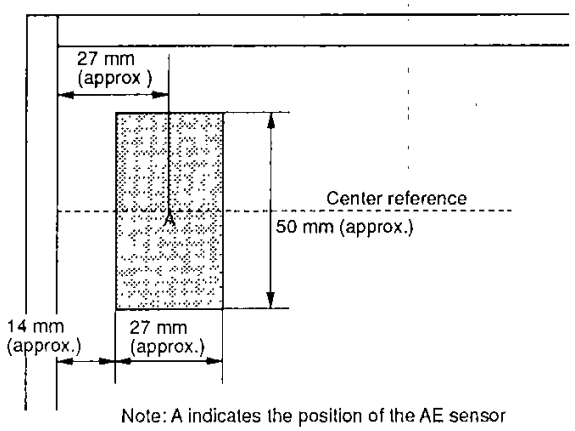


Figure 3-316



Note: A indicates the position of the AE sensor

Figure 3-317 (Area Read by the AE Sensor)

Reference:
When copies are made in AE using an ADF-E1 (option), the density is checked for each original.

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3. AE Adjustment

The copier's AE adjustment is executed in service mode and consists of the following three types:

- lamp intensity automatic adjustment (No. 301) during AE scans
- copy density (development bias) standard adjustment (No. 302) during AE mode
- copy density (development bias) slope adjustment (No. 303) during AE mode

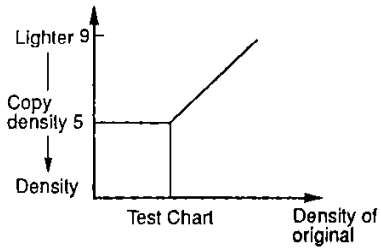
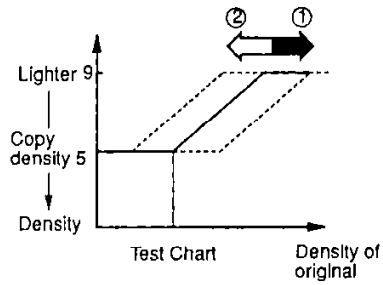
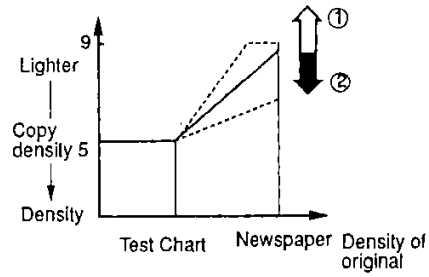
Item	Description	Adjustments	Remarks
No. 301	Lamp intensity automatic adjustment during AE scans		The density is adjusted automatically so that the copy density will be 5 when making copies of the Test Chart.
No. 302	Copy density (development bias) standard adjustment during AE mode		①If the setting is decreased in service mode, →AE copies will be darker. ②If the setting is increased in service mode, →AE copies will be lighter. default: 0 settings: –26 to +26
No. 303	Copy density (development bias) slope adjustment during AE mode		①If the setting is increased in service mode, →copies of a newspaper will be lighter. ②If the setting is decreased in service mode, →copies of a newspaper will be darker. default: 0 settings: –26 to +26

Table 3-303

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I. Developing/Cleaning Assembly

1. Outline

The copier's photosensitive drum, developing cylinder, No. 1 stirring rod, and No. 2 stirring blade are rotated by the drive of the main motor (M1).

The level of the toner inside the developing assembly is monitored by the toner sensor; when it drops below a specific level, the Add Toner indicator flashes on the display of the control panel.

The No. 1 stirring rod serves to supply toner to the developing cylinder and stir the toner flow layer inside the developing chamber.

The No. 2 stirring blade is used to stir the toner inside the toner container and, at the same time, to supply toner to the developing chamber.

The waste toner collected by the cleaning blade is forwarded by the waste toner feed blade for collection inside the waste toner assembly.

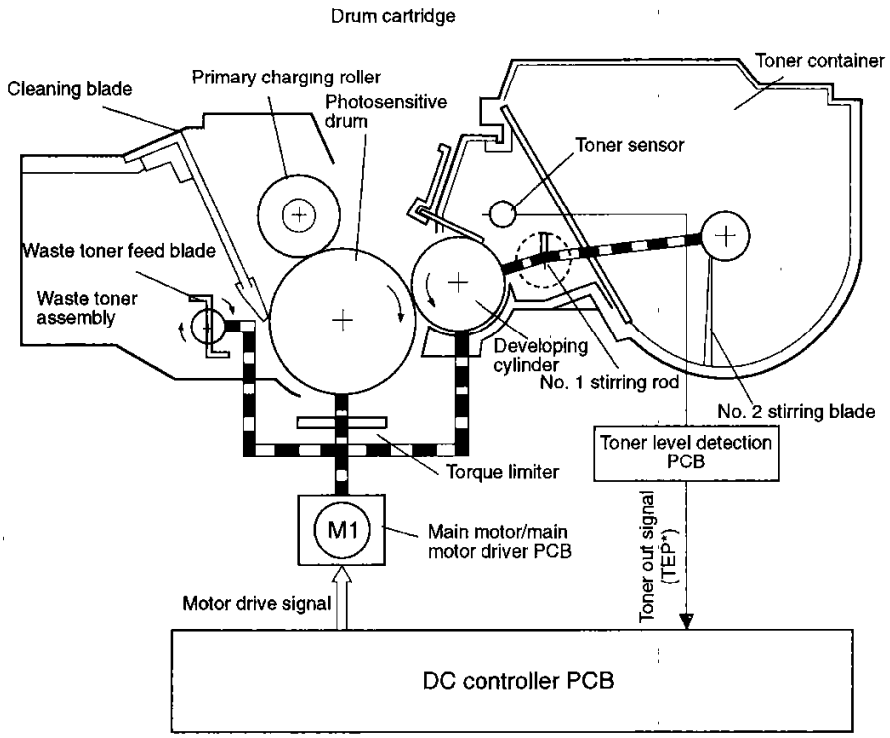

Figure 3-318

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2. Controlling the Toner Level Detection

The level of toner inside the cartridge is monitored by the antenna sensor circuit.

The toner level sensor is found inside the cartridge, and an AC bias is applied to the developing cylinder.

The developing cylinder and the toner level sensor are connected by means of static electricity; the volumes of charges between the two vary according to the amount of toner inside the cartridge; as a result, an AC bias that represents the level of the toner is checked by the toner level sensor, and the data is sent to the antenna sensor circuit.

The antenna sensor circuit receives a reference signal from the composite power supply circuit; the reference signal is an AC bias with a specific AC bias that has gone through attenuation.

In the antenna circuit, the signal coming from the toner level sensor and the reference signal are compared to find out the level of toner.

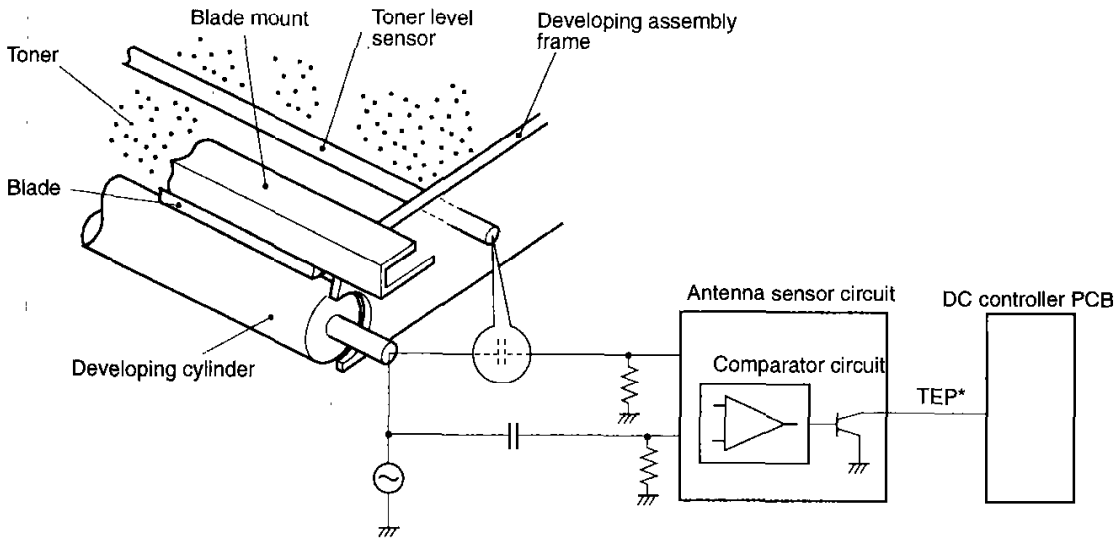

Figure 3-319

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① When the Level of Toner Is Adequate

The presence of toner around the toner level sensor causes the AC bias generated by the sensor to be larger than the reference signal.

The condition causes the output from the comparator circuit to go '1' and the toner out signal (TEP*) to go '0'.

② When the Level of toner Is Inadequate

The toner around the toner level sensor decreases in amount, causing the AC bias generated by the sensor to lower.

Since the reference signal, on the other hand, remains unchanged, the output voltage remains high.

The difference in the potential causes the output of the comparator circuit to go '0', causing the toner out signal (TEP*) to go '1'.

The condition causes the microprocessor (Q301) in the DC controller cirucit to make checks only during copying operating (AC bias ON); if it detects the toner out signal=0, each lasting 0.25 sec or more, for a total time equivalent of three copies, the Cartridge indicator is flashed on the display of the control panel.

③ Torque Limiter

If an excessive load is imposed on the photosensitive drum because of excessive amounts of waste toner or some other reason while the drum is rotating, the torque limiter cuts off the drive from the main motor to stop the rotating of the drum.

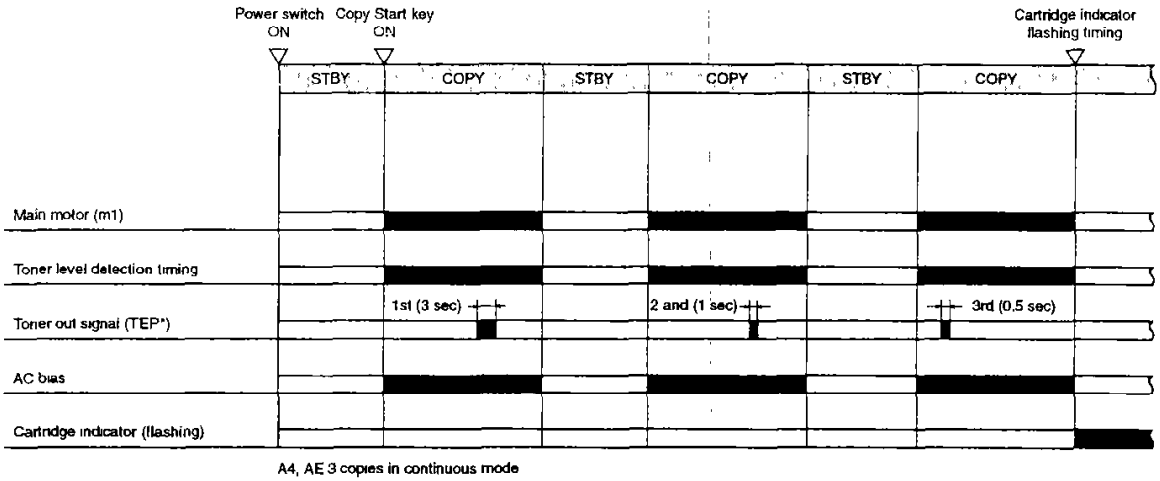

Figure 3-320

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J. Controlling Blank Exposure

1. Outline

The copier uses the reflecting plate to direct the light of the pre-exposure lamp to the photosensitive drum by way of executing blank exposure, thereby blanking (whiting) out the non-image areas and areas between copies.

The area of blank exposure is controlled by the two slide shutters and one open/close shutter.

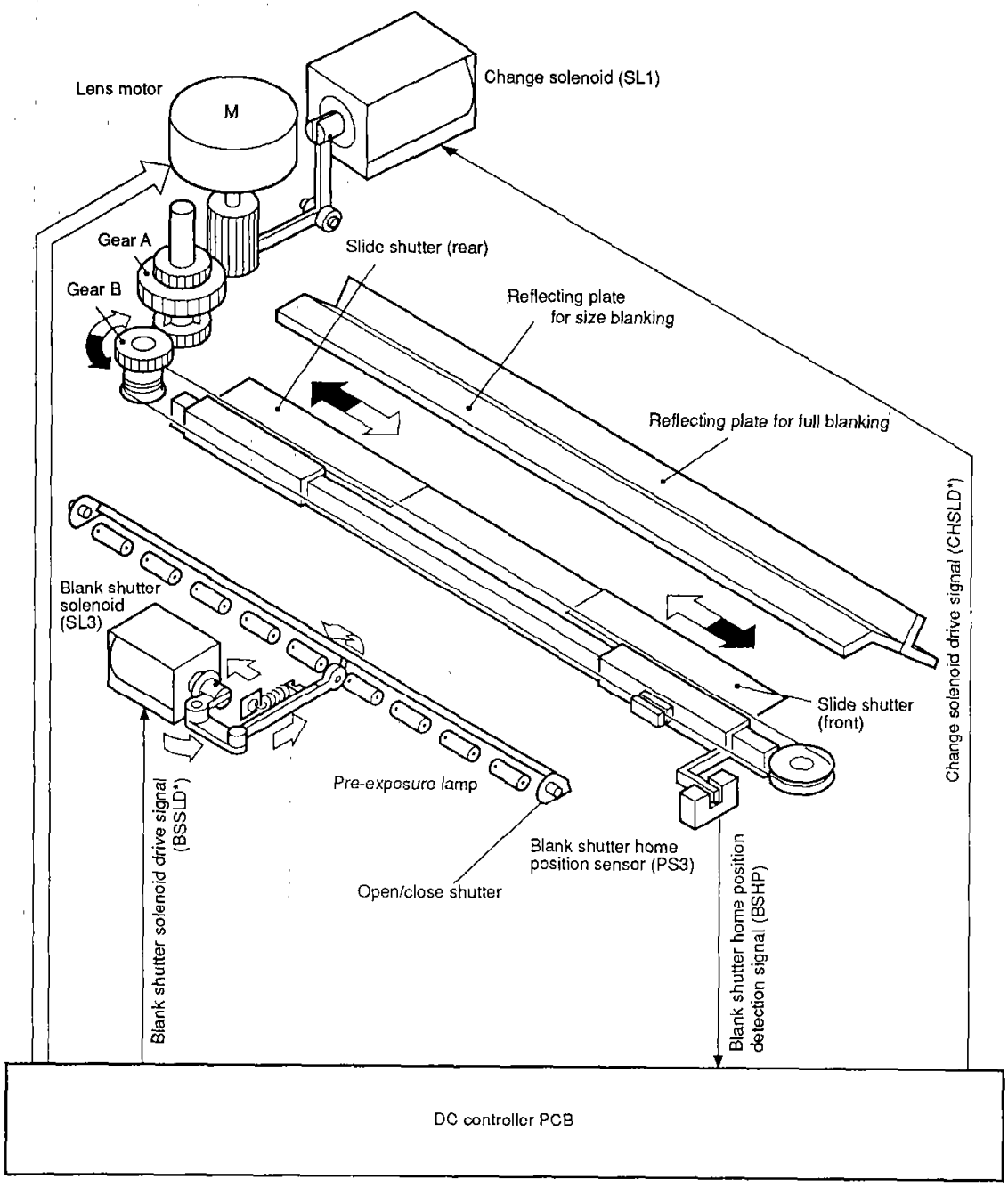

Figure 3-321

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2. Blanking (Whiting) of Non-Image Areas for Reduction

In Reduce mode, the change solenoid (SL1) turns on, and the lens moves according to the selected reproduction ratio. When the change solenoid (SL1) turns off, the drive of the lens motor is transmitted to gears A and B, thereby moving the slide shutter (rear, front) for the appropriate distance to open the exposure window. In this condition, the light from the pre-exposure lamp is directed to the photosensitive drum by way of the reflecting plate for size blanking.

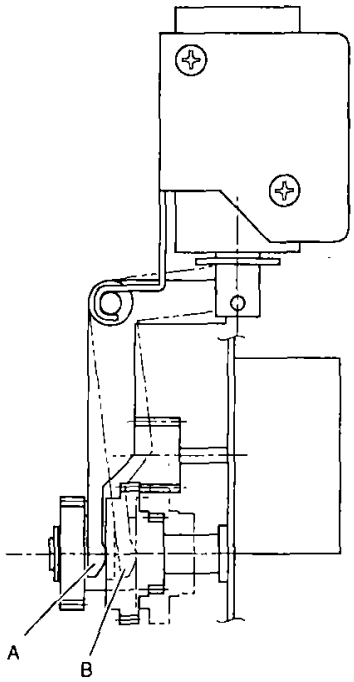

Figure 3-322

3. Blanking (Whiting) Out the Leading/ Trailing Edges and between Copies

The blank shutter solenoid drive signal (BSSSLD) turns on or off under the control of the microprocessor (Q301) on the DC controller. The leading/trailing edge and the area between copies are blacked (whited) out by opening the open/close shutter in this way.

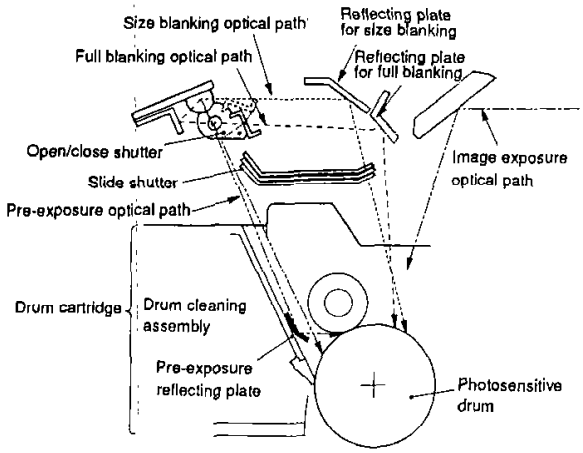

Figure 3-323

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K. Controlling the Primary Corona Roller Cleaning Mechanism

1. Outline

The copier's primary charging roller is equipped with an automatic cleaning mechanism.

The automatic cleaning mechanism cleans the primary charging roller during initial rotation(INTR) after having made 250 or more copies, i.e., after executing transfer roller release control five times.

2. Primary Charging Roller Cleaning Operation

The primary charging roller cleaning solenoid (SL4) on signal (PCLSLD) is generated under the control of the microprocessor (Q301) on the DC controller PCB. In response to the signal, the cleaning pad is butted against the roller for 2 sec, during which time the cleaning roller makes about 4 rotations.

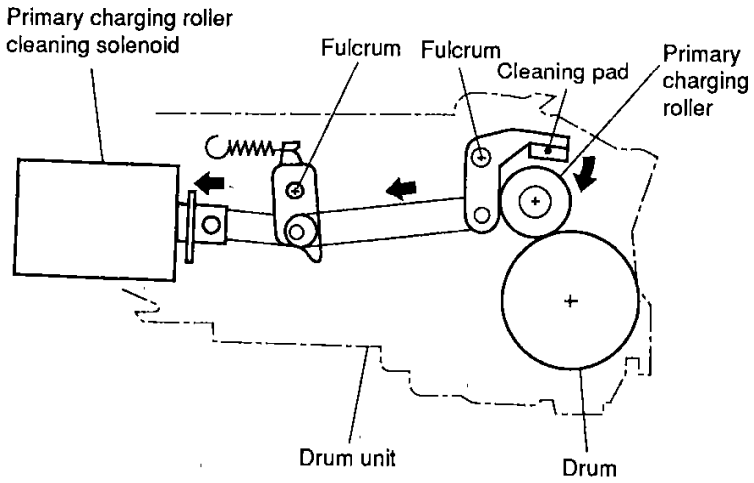

Figure 3-324

L. Releasing the Transfer Roller

1. Outline

The copier's transfer roller is equipped with a releasing mechanism.

The releasing mechanism releases the transfer roller to prevent adhesion of toner to the roller under the following condition:

- during post rotation (LSTR) after as many as 50 copies or more have been made (cumulative)

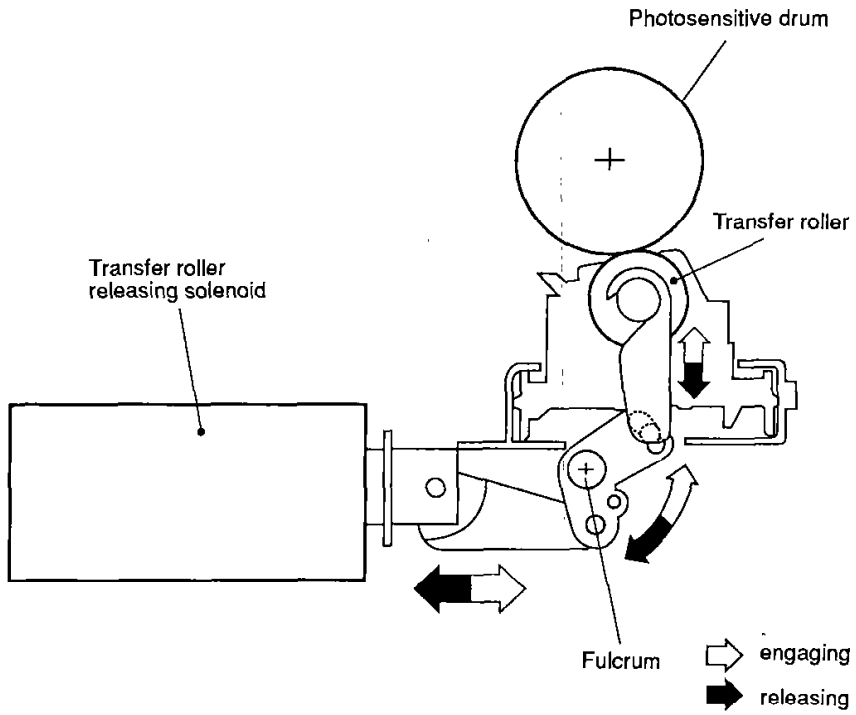

Figure 3-325

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IV. PICK-UP/FEEDING SYSTEM

A. Pick-Up Operation (copier)

1. Outline

When the pick-up clutch (CL2 or CL3) turns on while the main motor (M1) is rotating, the pick-up roller rotates to move paper as far as the registration roller.

The copy paper is controlled so that its leading edge and the leading edge of the image on the photosensitive drum match; then, it is moved through the transfer assembly, feeding assembly, fixing assembly, and delivery assembly to reach the copy tray.

As many as three photointerrupters (PS6, PS7, PS8) are provided along the paper path, turning on the Jam indicator on the control panel when jams are identified in terms of whether paper has reached or has moved past the respective sensors within a specific period of time.

The presence/absence of paper inside the cassette or the multifeeder is monitored by separate photointerpreters (PS4, PS5); when the absence of paper is identified, the Paper indicator is flashed on the control panel.

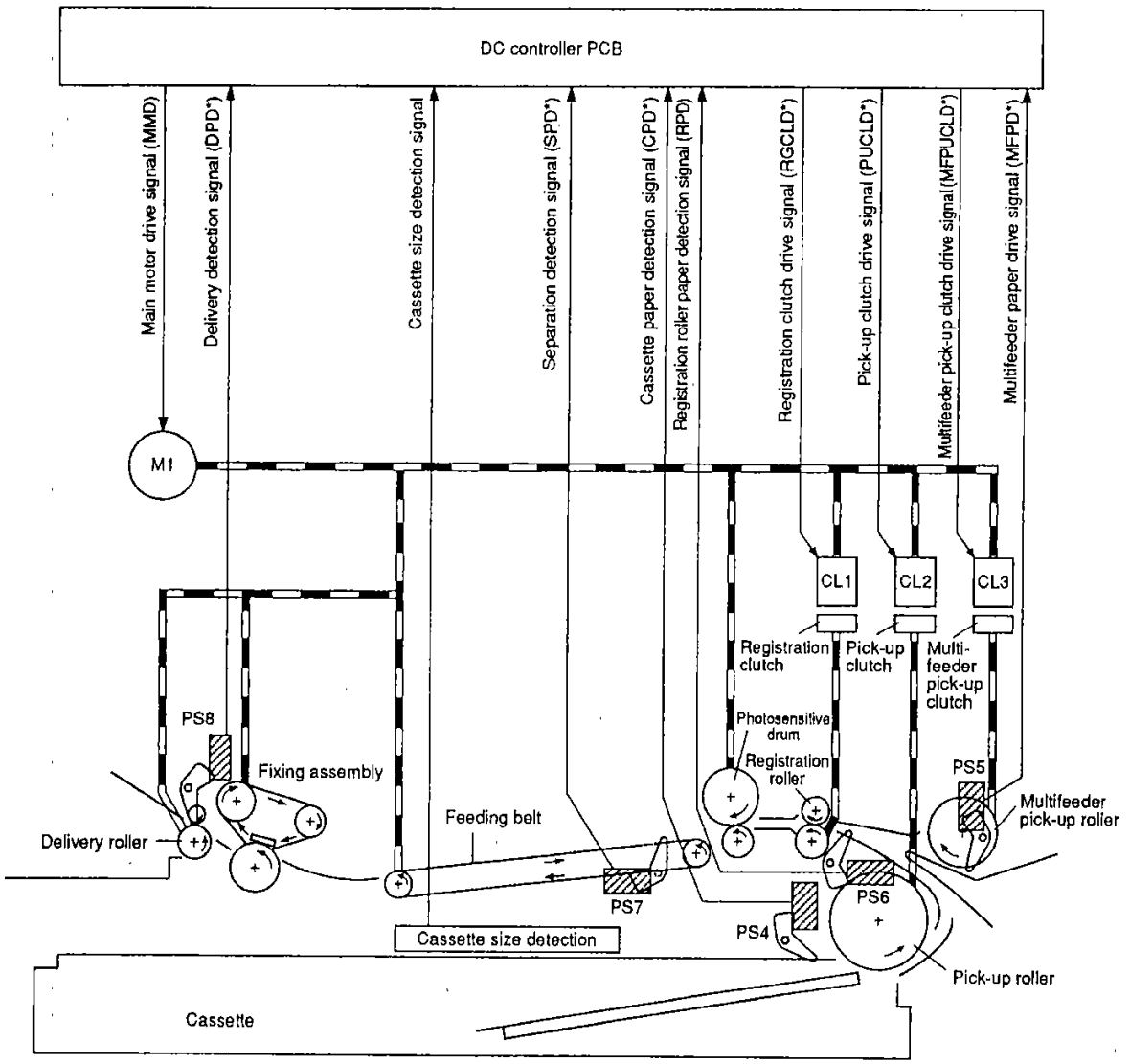

Figure 3-401

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2. Sequence of Operations (pick-up/feeding assembly; A4, 2 copies)

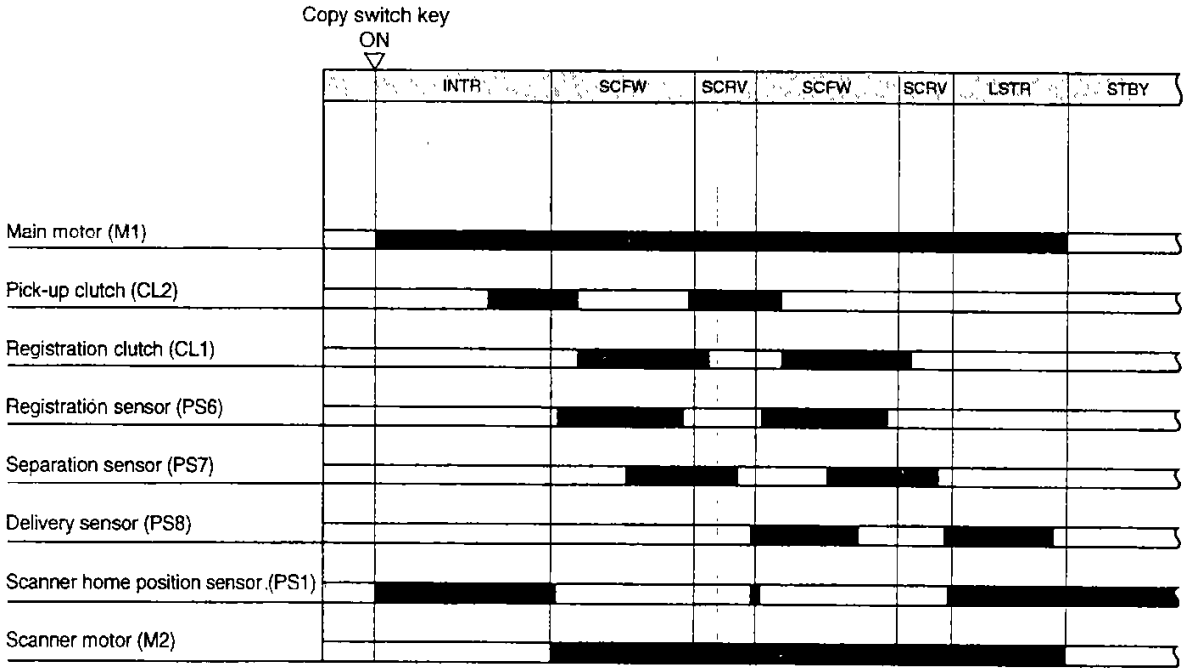

Figure 3-402

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B. Pick-Up from the 2-Cassette Feeding Unit

1. Pick-Up Operation

When the pick-up clutch (CL1cu, CL2cu) turns on while the cassette unit motor (M1cu), the pick-up roller starts to rotate to pick up copy paper; the paper is then moved to the registration roller by the vertical path roller. (The sequence that follows is the same as when paper is picked up from the cassette in the copier.)

For pick-up operation from the cassette feeding unit, pick-up sensors (PS1cu, PS3cu) are used to check the arrival of paper, thereby deciding when to turn off the pick-up roller according to the size of paper.

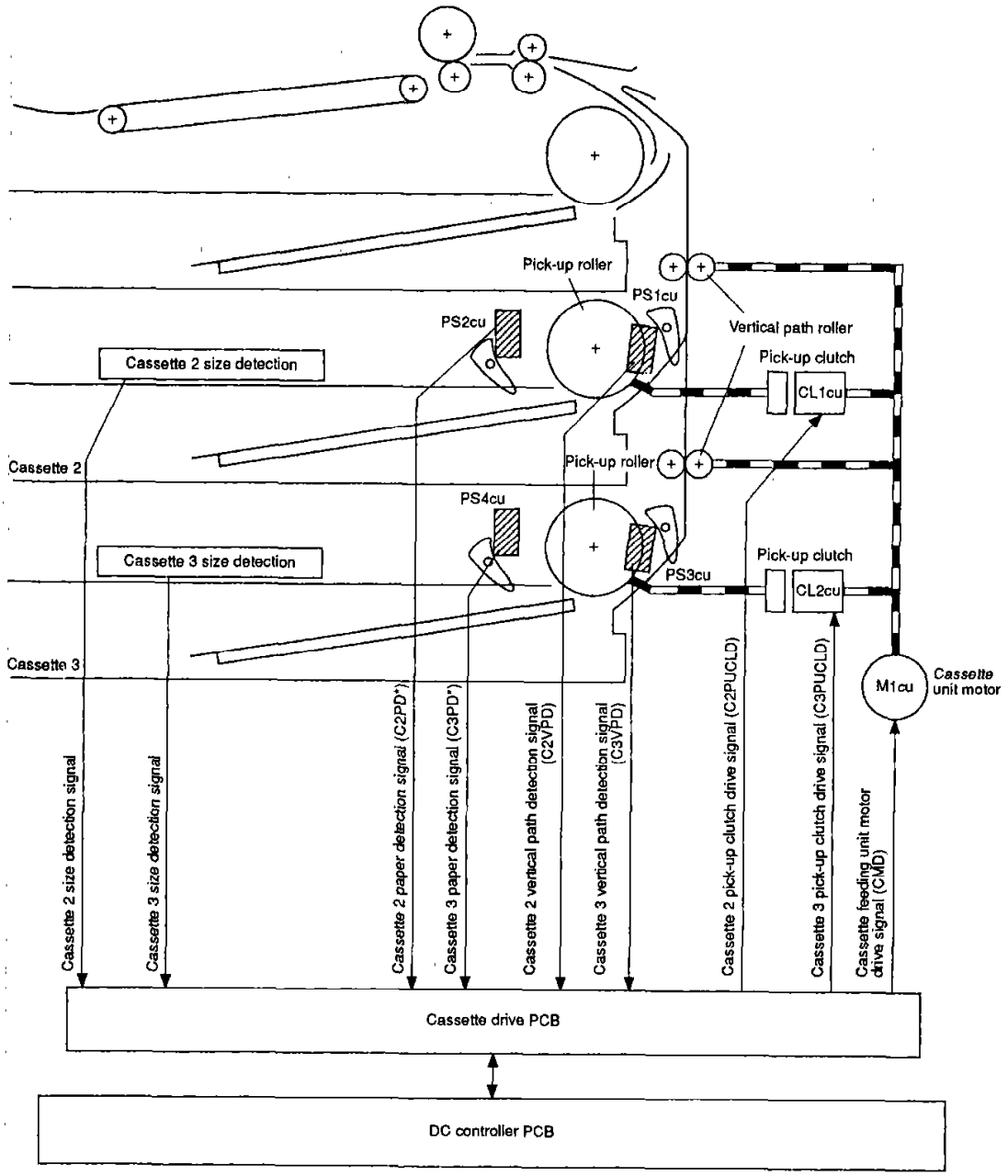

Figure 3-403

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2. Sequence of Operations (cassette 2; A4, 2 copies)

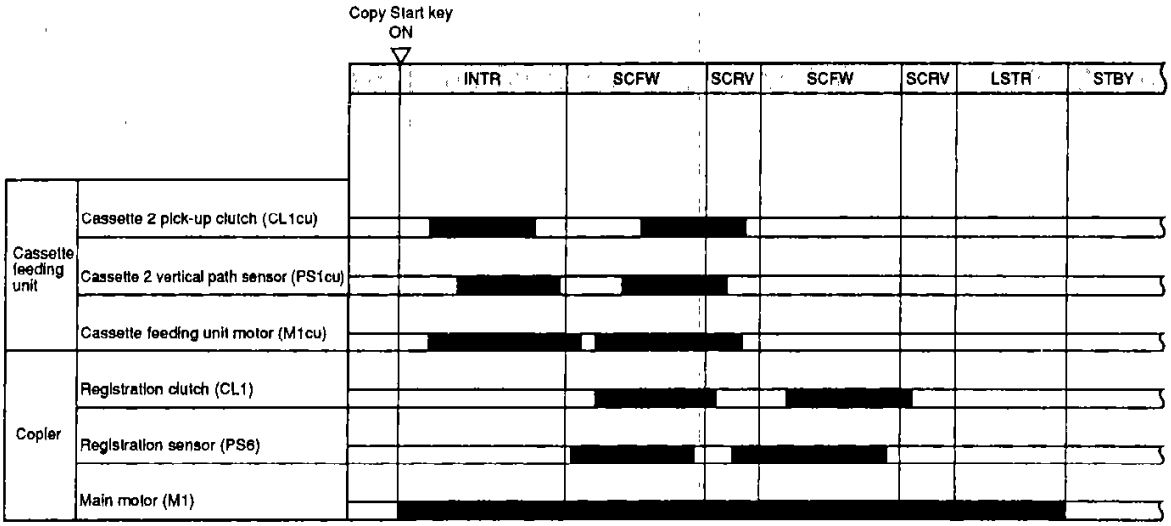

Figure 3-404

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C. Multifeeder

1. Outline

The multifeeder is designed to pick up paper loaded on its tray and is capable of continuous pick-up operation.

Paper on the tray is detected by the multifeeder sensor (PS5).

Paper loaded on the tray is butted against the pick-up roller by the paper guide plate; the drive from the main motor (M1) is transmitted to the pick-up roller through a clutch to rotate the pick-up roller.

By the work of the pick-up roller and the separation pad, a single sheet of copy paper is forwarded to the registration roller.

The series of operations is executed for each pick-up operation.

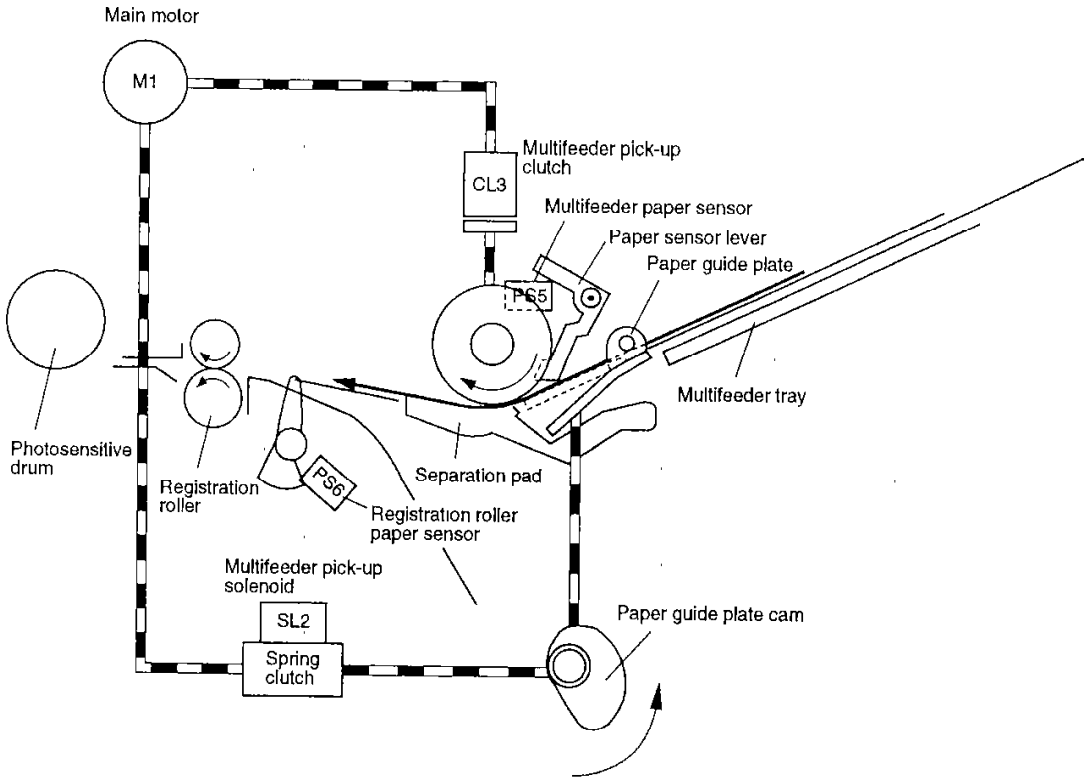

Figure 3-405

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2. Identifying the Size of Paper on the Multifeeder

The width of copy paper is identified by a variable resistor (VR1) which operates in response to the location of the slide guide, which is adjusted by the user to suit the size of paper.

The identified width of copy paper is used for blank exposure control.

The length of paper when the multifeeder is used is identified by the period of time during which the registration sensor (PS6) remains on.

The data collected in such a way is used to control the length of blank exposure, activation of the registration roller, and high voltage.

Reference:
The maximum length of paper is 432 mm (LDG size); paper longer than this will lead to a jam.

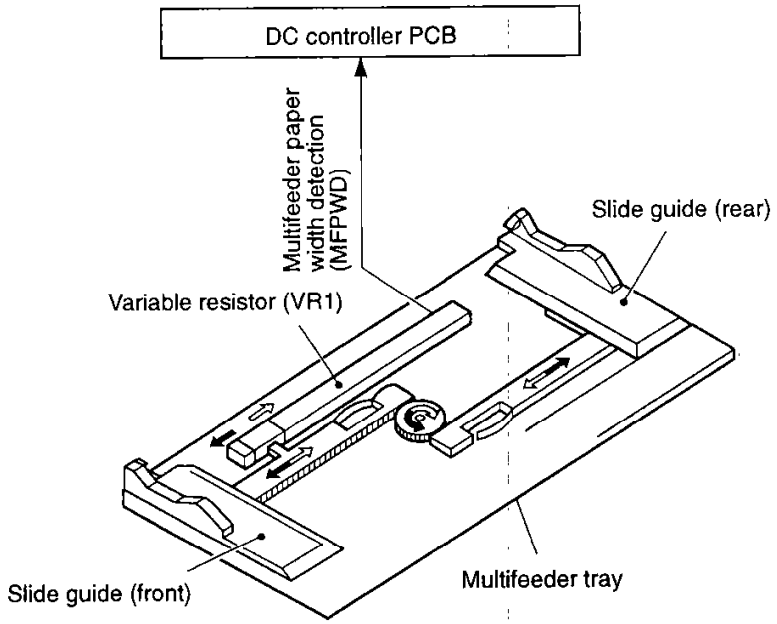

Figure 3-406

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3. Sequence of Operations (multifeeder; A4, 2 copies)

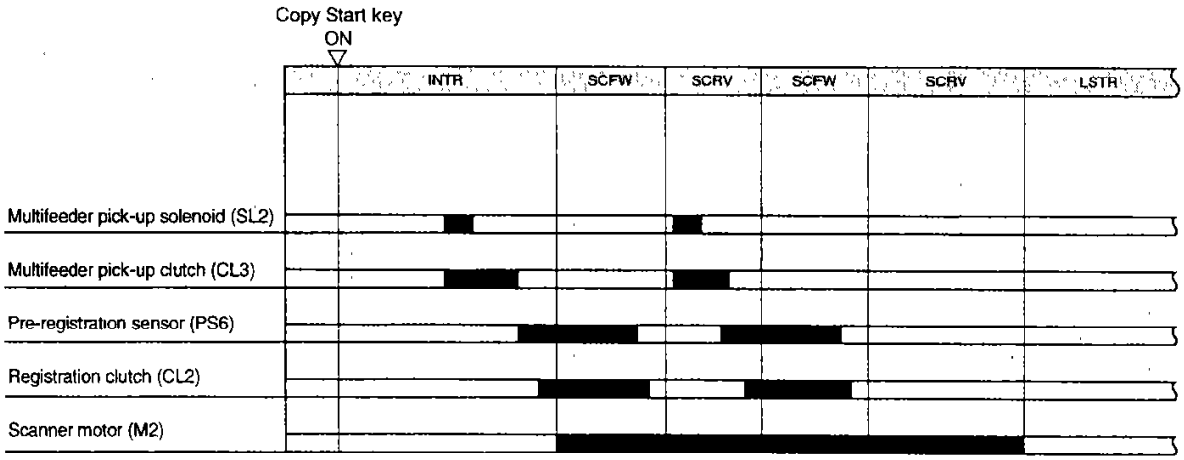

Figure 3-407

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D. Identifying the Cassette Size

When a cassette is set in the cassette holder, appropriate photointerrupters (Q651, Q652, Q653, Q654) turn on or off.

The microprocessor on the DC controller PCB identifies the presence/absence of a cassette based on the combinations of the photointerrupters which are either on or off (Table 3-401); accordingly, the microprocessor controls where the scanner must be reversed or when to execute blank exposure.

Arrangement / Cassette size	Q651 (left)	Q652	Q653	Q654 (right)
No cassette	0	0	0	0
B5R (182 × 257)	0	0	0	1
A4 (297 × 220)	0	0	1	0
A3 (297 × 420)	0	0	1	1
Mini (STMTR) 5.5" × 8.5" (148 × 216)	0	1	0	0
Legal 8.5" × 14" (356 × 216)	0	1	0	1
Letter 11" × 8.5" (279 × 216)	0	1	1	0
A4R (210 × 297)	0	1	1	1
Letter R 8.5" × 11" (216 × 279)	1	0	0	0
A5R (149 × 218)	1	0	0	1
A5 (218 × 149)	1	0	1	0
Mini-R (STMT) 8.5" × 5.5" (216 × 148)	1	0	1	1
B5 (257 × 182)	1	1	0	0
B4 (364 × 257)	1	1	0	1
Ledger 11" × 17" (182 × 257)	1	1	1	0
*U (182 ~ 283 × 198 ~ 354)	1	1	1	1

(unit: mm)

1: photointerrupter is blocking light.
0: photointerrupter is not blocking light.
*size may be stored; must be within the range specified in mm; for details, see the Service Handbook.

Table 3-401

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To change the cassette size, you must not only move the guide plate (horizontal, vertical) inside the cassette to suit the copy paper but also move the paper size lever located toward the front of the cassette (Figure 3-408) to the left or right so that the arrow points to the appropriate paper size.

Caution:
A discrepancy between the size set by the paper size lever and the size of copy paper will result in jams or soiling because of the wrong copying sequence.
Advise the user to be sure to match the size set by the paper size lever and the size of copy paper.

Reference:
Paper size configurations differ from area to area; however, you may still make sure of a specific copy control sequence for the size of paper that does not fall under the respective category—the size, nevertheless, will not be indicated on the display.
For instance, you may use LTR paper for a metric model. (The paper size lever, in this case, will be set to LTR.) This arrangement causes the copier to execute the copying sequence intended for LTR copies.

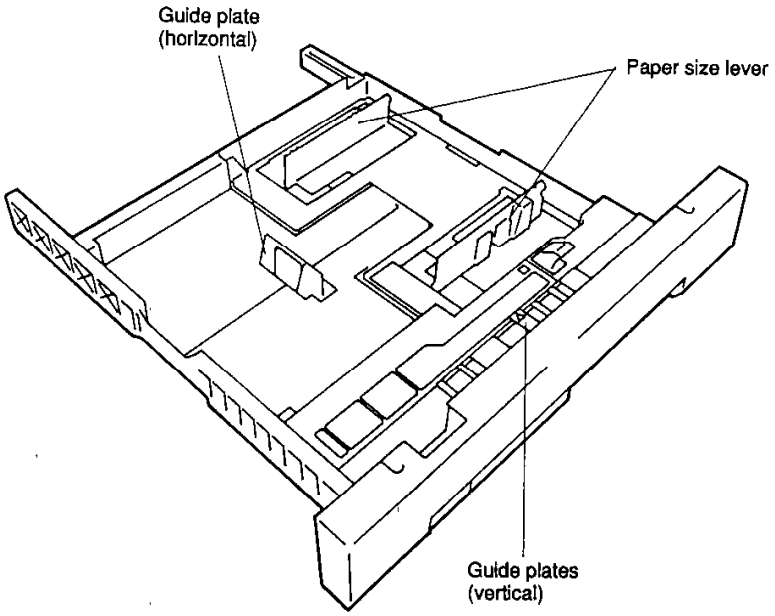

Figure 3-408

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E. Fixing/Delivery Assembly

1. Outline

The drive roller of the fixing assembly is driven by the main motor (M1).

When the drive roller rotates, the fixing film rotates and, in conjunction, the pressure roller rotates.

Part of the inside of the fixing film is heated by the fixing heater.

The temperature of the fixing heater is monitored by a thermistor (TH1), and the result is sent to the microprocessor in the DC controller circuit in the form of the fixing heater temperature detection signal (TH1).

Based on the result (TH1 signal), the microprocessor on the DC controller varies the fixing heater drive signal (HTRD) to control the temperature of the fixing heater.

Further, a thermistor (TH2) is also provided on the end (rear) of the fixing heater to monitor overheating.

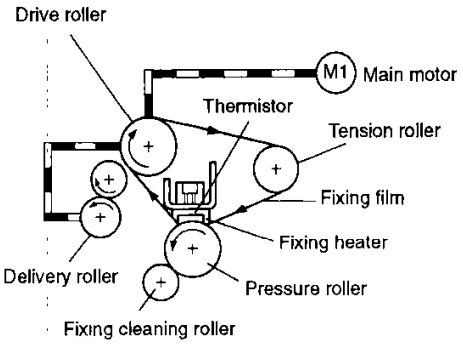

Figure 3-409

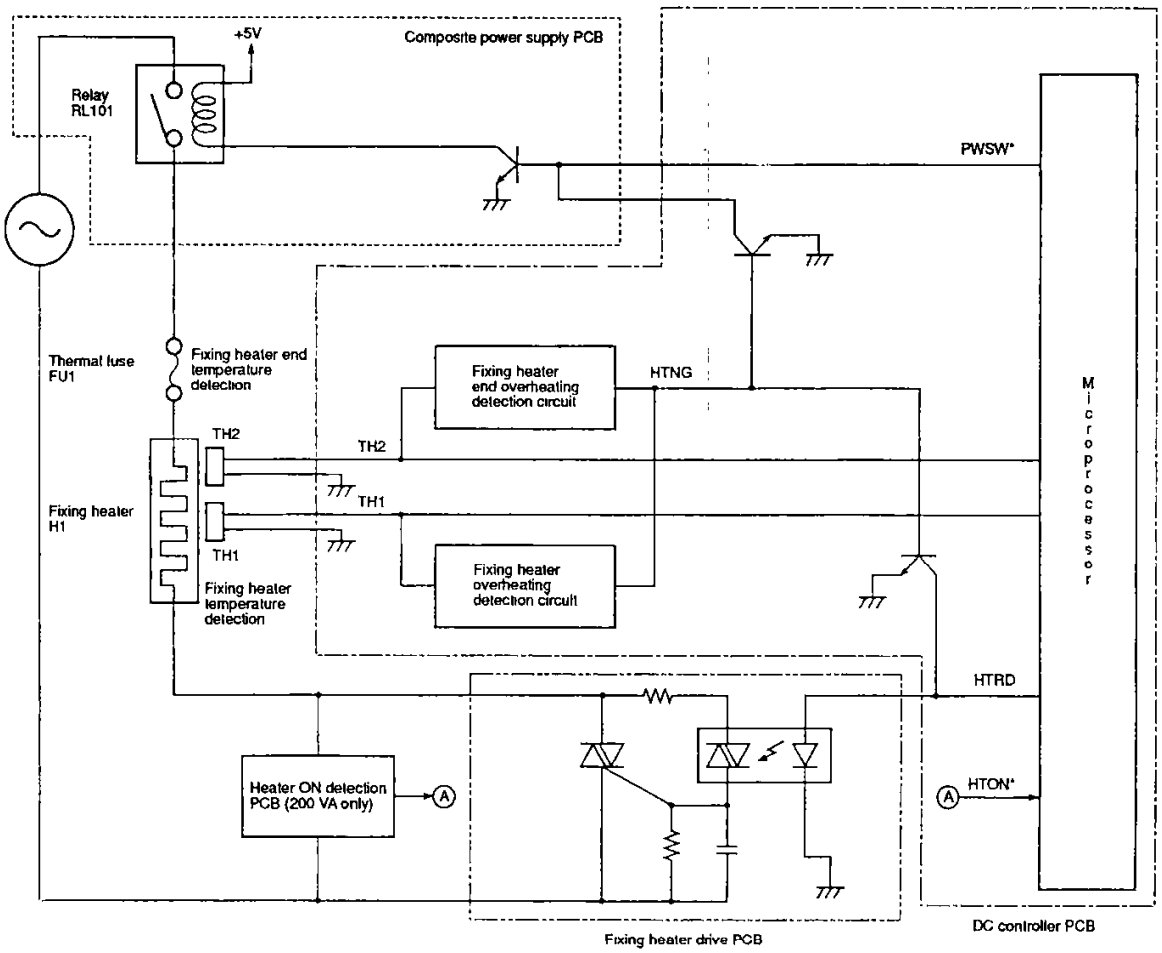

Figure 3-410

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2. Controlling the Fixing Heater Temperature

The fixing heater remains off while the copier is in standby state. To prevent fixing faults caused by low temperature, its temperature is controlled in any of the following three modes depending on the temperature at the time copying is started (as measured by the main thermistor TH1) and the number of copies to be made in continuous mode:

a. If the temperature at the time copying is started is 140°C or more, it is controlled so that it remains 180°C at all times.
- 1st to 100th copy → 180°C

b. If the temperature at the time copying is started is 120°C or more and less than 140°C, it is controlled so that it remains between 200° and 180°C depending on the number of copies to be made.
- 1st copy → 200°C
- 2nd to 9th copy → 195°C
- 10th to 20th copy → 190°C
- 21st to 25th copy → 185°C
- 26th to 100th copy → 180°C

c. If the temperature at the time copying is started is less than 120°C or less, the temperature is controlled to 225°–180°C, 215°–180°C, or 200°–180°C selected by service mode. (See the Service Handbook.)

■Control 1
- 1st to 4th copy → 225°C
- 5th copy → 220°C
- 6th copy → 215°C
- 7th copy → 210°C
- 8th copy → 205°C
- 9th to 20th copy → 200°C
- 21st to 25th copy → 195°C
- 26th to 40th copy → 190°C
- 41st to 45th copy → 185°C
- 46th to 100th copy → 180°C

■Control 2 (default)
- 1st to 4th copy → 215°C
- 5th copy → 210°C
- 6th copy → 205°C
- 7th to 20th copy → 200°C
- 21st to 25th copy → 195°C
- 26th to 40th copy → 190°C
- 41st to 45th copy → 185°C
- 46th to 100th copy → 180°C

■Control 3
- 1st to 20th copy → 200°C
- 21st to 25th copy → 195°C
- 26th to 40th copy → 190°C
- 41st to 45th copy → 185°C
- 46th to 100th copy → 180°C

Reference:
Normally, control 2 is used. Use control 1 to increase the control temperature if a fixing fault occurs; or use control 3 to lower the control temperature if offset occurs. (See the Service Handbook.)

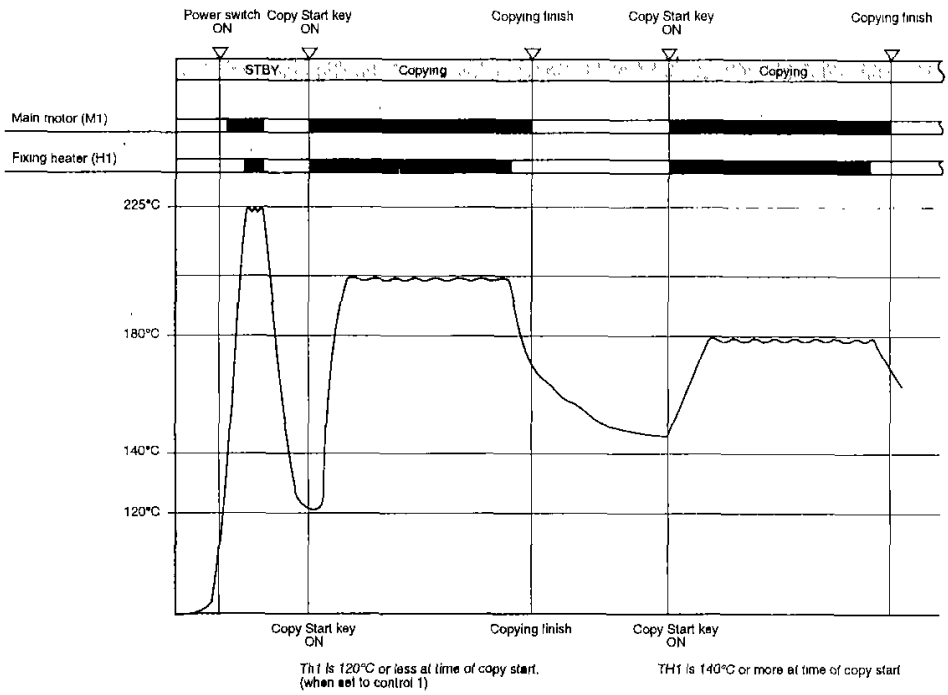

Figure 3-411

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3. Controlling the Supply Power for the Fixing Heater

The temperature of the fixing heater is controlled by controlling the power supplied to the fixing heater.

The resistance of the plane-shaped heater used as the fixing heater may show some variation depending on which production lot it comes from.

For this reason, whenever you have replaced the copier's heater, you must store the resistance value in service mode (No. 304; see p. 3-77); this way, the microprocessor on the DC controller PCB can exert proper control over power.

Caution:
The resistance of the fixing heater is stored in service mode at the time the copier is shipped out of the factory; do not change it unless you have replaced the fixing heater.

The power of the fixing heater is controlled by a phase power control method.

The microprocessor controls the output timing of the fixing heater drive signal (HTRD) so that power that suits the target temperature of the fixing heater may be supplied to the heater (potential control of the supply power).

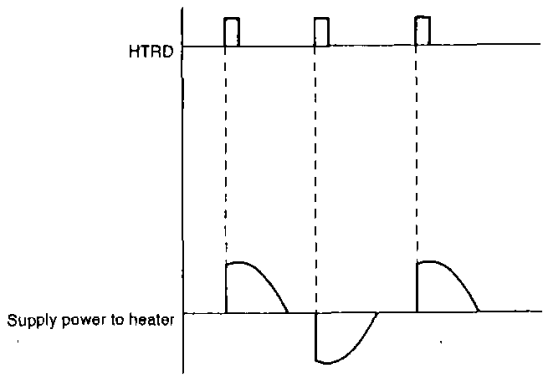

Figure 3-412

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4. Detecting Overheating at the End of the Fixing Heater

A sub thermistor (TH2) is provided at the end (rear) of the copier's fixing heater to monitor overheating.

This consideration to prevent damage to the fixing film caused by overheating of the area where paper (smaller than B4) does not come into contact.

When TH2 registers 250°C or more, the distance between copies is increased to facilitate discharge of heat by the fixing heater, thereby preventing overheating.

The copier continues to make copies maintaining such a distance even after TH2 registers a value lower than 250°C.

If the temperature further increases after the distance has been increased and if the value reaches 260°C or more, the ongoing copying operation will be stopped and the power will be cut off; at the times E001 information is stored. (See p. 3-91.)

5. Protection Mechanism

The copier is equipped with the following protective functions to prevent malfunction of the fixing heater:

a. Thermistor (TH1, TH2)

1. The microprocessor on the DC controller monitors the voltage of the thermistor (TH1, TH2); if it detects a high or low temperature error, it stops the power to the heater and cuts off all the power. At the time, E000 thorugh E003 information is stored. (See p. 3-91.)
2. If the overheating detection circuit identifies that TH1 has registered 260°C or TH2 has registered 270°C for 0.3 sec or more, the heater error detection signal (HTNG) turns off the relay (RL101) to stop power to the fixing heater and cut off all the power. (See p. 3-91.)

Caution:
Be sure to disconnect the connector (J4) of the fixing heater and press the service switch (SW301) on the DC controller when turning on the power.

b. Thermal Fuse (FU1)

If the temperature around the thermal fuse remains 226°C or more for a specific period of time, the fuse melts to cut off the power to the fixing heater.

c. Heater ON Detection Circuit (200V model only)

The period of time during which the fixing heater drive signal (HTRD) remains off is detected; if an error is found, the power is cut off and E004 information is stored at the time.

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6. Correcting Displacement of the Fixing Film

a. Outline

The fixing film at times becomes displaced toward the front or rear as it keeps turning. To correct such displacement, the copier is equipped with a correction mechanism.

The control is executed by the fixing film sensor (PS9), which detects the position of the film, and the fixing film motor (M4), which physically corrects displacement.

Reference:
If you turn on the power by inserting the door switch actuator into the door switch with the top body of the copier open, E007 will be detected, since the condition prevents the fixing film from turning.

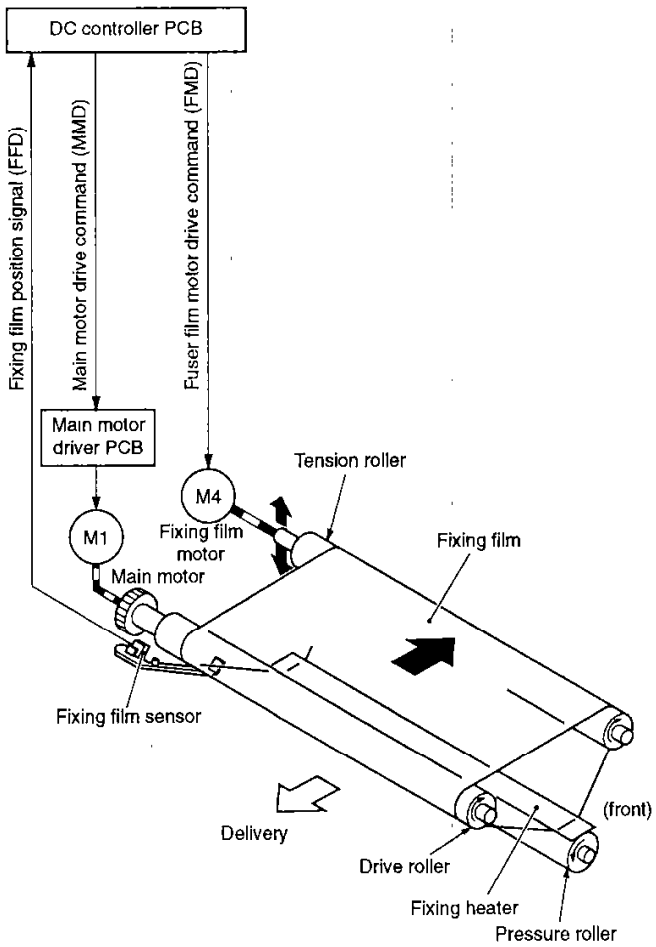

Figure 3-413

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The fixing film sensor (PS9) is used to detect the position of the fixing film and found at the end of the film.

The rear (sensor side) of the fixing film is provided with a cut as shown in Figure 3-414 so that the fixing film sensor continuously goes on and off.

Normally, the on and off periods of the sensor are identical as long as the fixing film remains centered.

If the film starts to become displaced toward the rear, however, the on period becomes longer; the off period becomes longer if the film starts to be displaced toward the front. (See Figure 3-415)

The DC controller monitors the on and off periods of the sensor and computes the difference to correct the position of the fixing film.

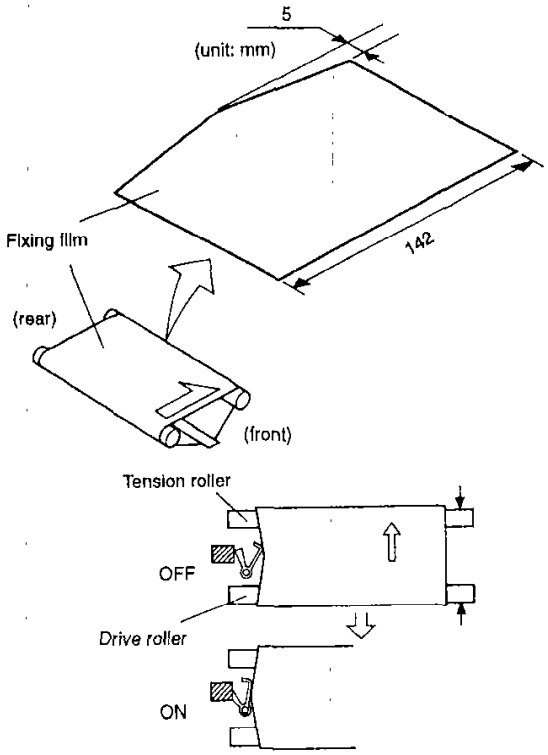

Figure 3-414

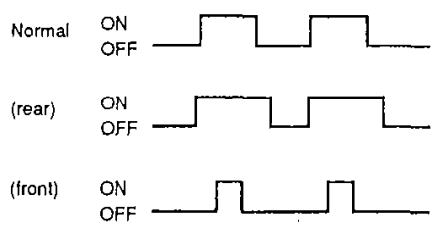

Figure 3-415

Displacement of the fixing film is physically corrected by the fixing film motor (M4).

When it identifies displacement of the fixing film, the DC controller rotates the fixing film motor to move the rear of the tension roller up and down, thereby moving the fixing film to the center to correct the displacement.

When the fixing film becomes displaced toward the rear, the tension roller is moved down to move the fixing film toward the front.

When the fixing film becomes displaced toward the front, on the other hand, the tension roller is moved up to move the fixing film toward the rear.

The fixing film is positioned properly by repeating these operations as necessary. If the film has become displaced so much that the mechanism fails to make adequate correction, 'E007' is indicated on the display. (See p. 3-91.)

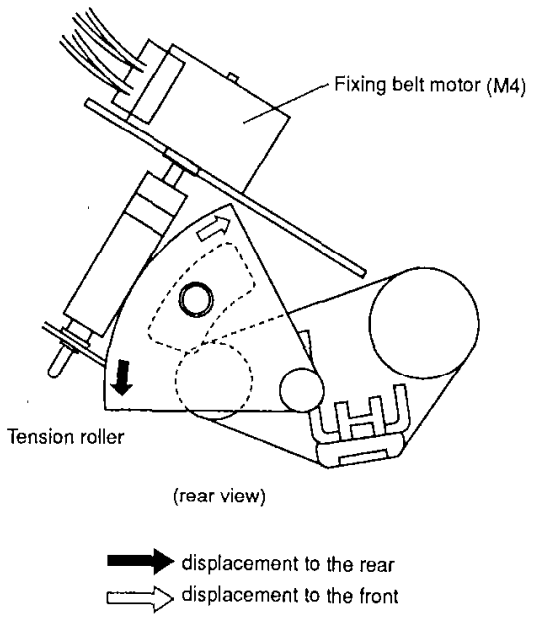

Figure 3-416

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b. Controlling the Fixing Film Motor

The fixing film motor is a stepping motor, and is rotated by the drive signal FMD and pulse signals FFA, FFA*, FFB, and FFB*.

When FMD is '1', the drive voltage FFCA and FFBCB are imposed; the motor starts to rotate when pulses are applied to each phase in specific sequence.

The motor is rotated in reverse by applying these pulses in reverse order.

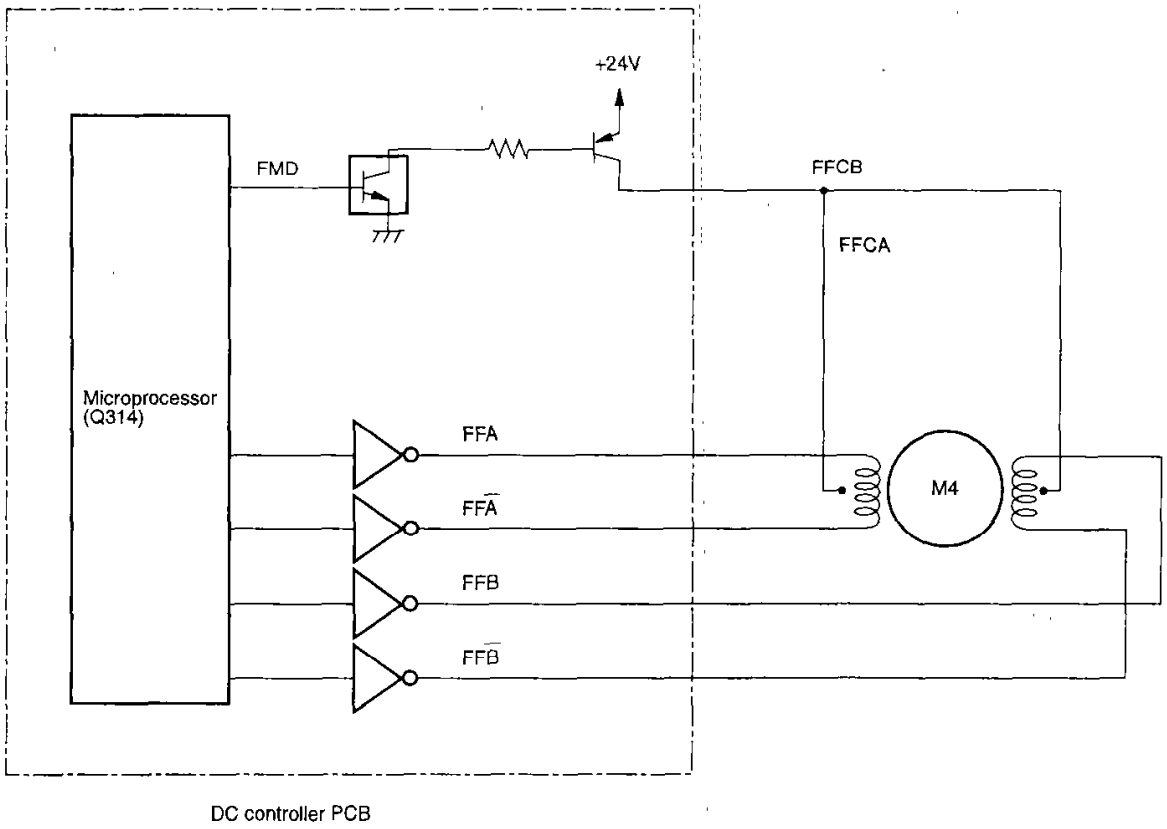

Figure 3-417

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F. Identifying Jams

As many as six (3 in the cassette feeding unit) are used to monitor the movement of copy paper:

- registration sensor (PS6)
- separation sensor (PS7)
- delivery sensor (PS8)

A jam is identified in terms of the presence/absence of paper at the respective sensors at such times as stored in the microprocessor.

The copier has a mechanism to remember how many copies remain to be made after a jam and the current copy mode; it still retains such information even when it is deprived of power by opening of the front cover.

The microprocessor has the jam detection sequence that is described below and, further, identifies the presence of paper as detected by a sensor at power-on.

When the copier identifies a jam, it immediately stops the ongoing copying operation and cuts off the power to the fixing heater (H1); at the same time, it flashes the Jam indicator on the control panel and flashes also any of the location indicator.

The activation of the jam detection mechanism will not increment the copy count for the copy which has jammed.

1. Pre-Registration Delay Jam

Copy paper does not reach the registration sensor (PS6) within a specific period of time after the pick-up clutch (CL2) has gone on because of feeding problems.

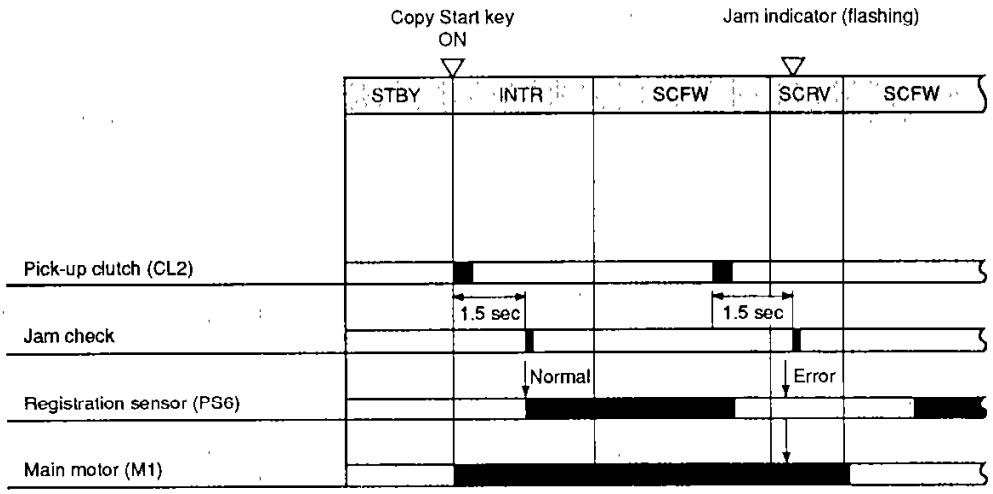

Figure 3-418 Pre-Registration Delay Jam Sequence

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2. Pre-Registration Timing Jam

Copy paper reaches the registration sensor (PS6) before a specific period of time after the pick-up clutch (CL2) has gone on because of feeding problems.

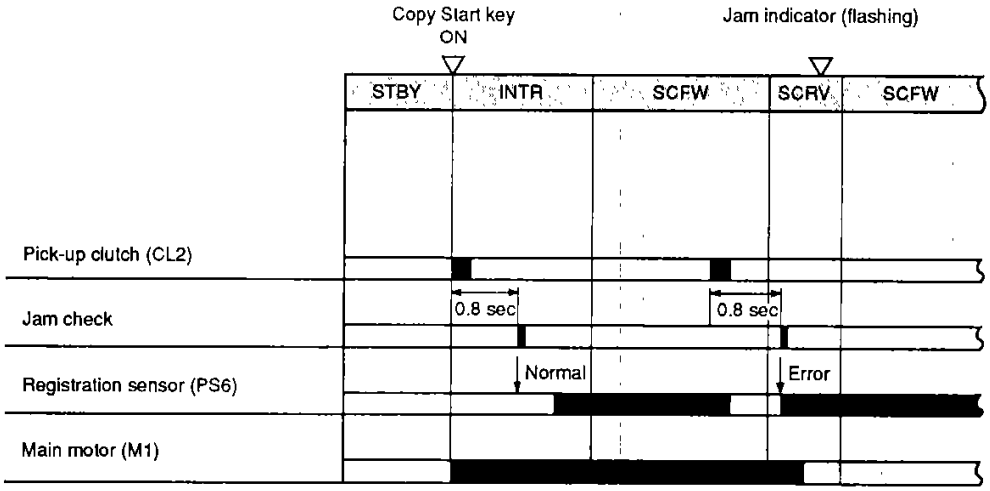

Figure 3-419 Pre-Registration Timing Jam Sequence

3. Pre-Registration Stationary Jam

Copy paper does not move past the registration sensor (PS6) within a specific period of time after the pick-up clutch (CL2) has turned on because of feeding problems.

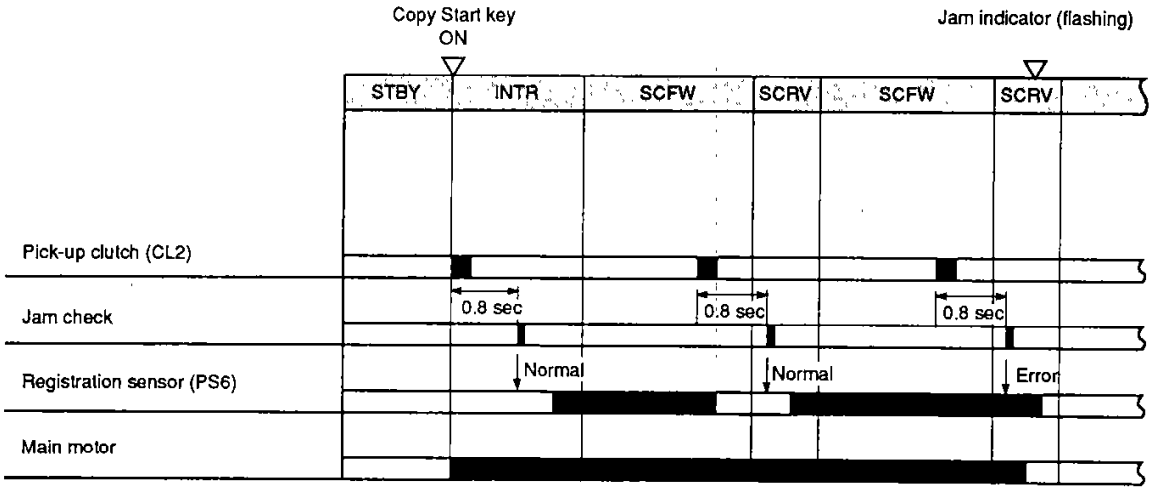

Figure 3-420 Pre-Registration Stationary Jam Sequence

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4. Separation Delay Jam

Copy paper does not reach the separation sensor (PS7) within a specific period of time after the registration clutch (CL1) has gone on because of feeding problems.

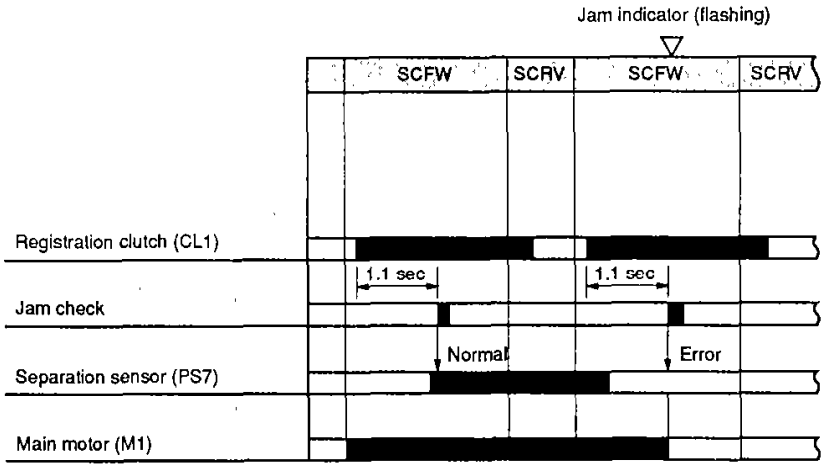

Figure 3-421 Separation Delay Jam Sequence

5. Separation Stationary Jam

Copy paper does not move past the separation sensor (PS7) within a specific period of time after the registration clutch (CL1) has gone on because of feeding problems.

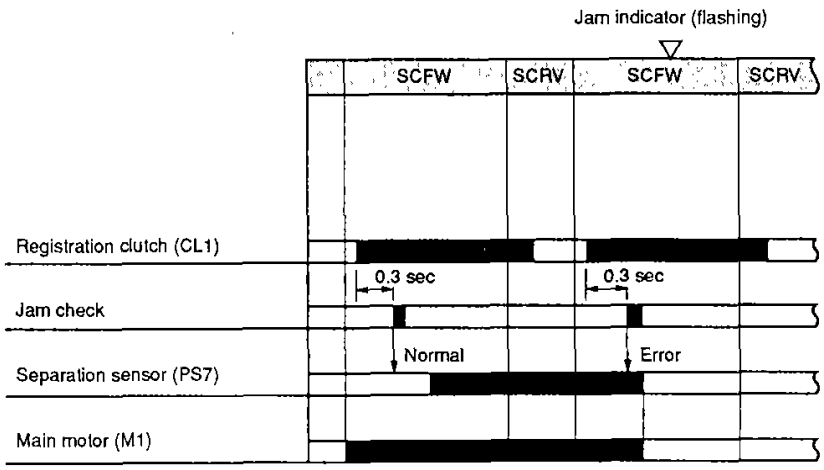

Figure 3-422 Separation Stationary Jam Sequence

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6. Delivery Delay Jam

Copy paper does not reach the delivery sensor (PS8) within a specific period of time after it has moved past the separation sensor (PS7) because of feeding problems.

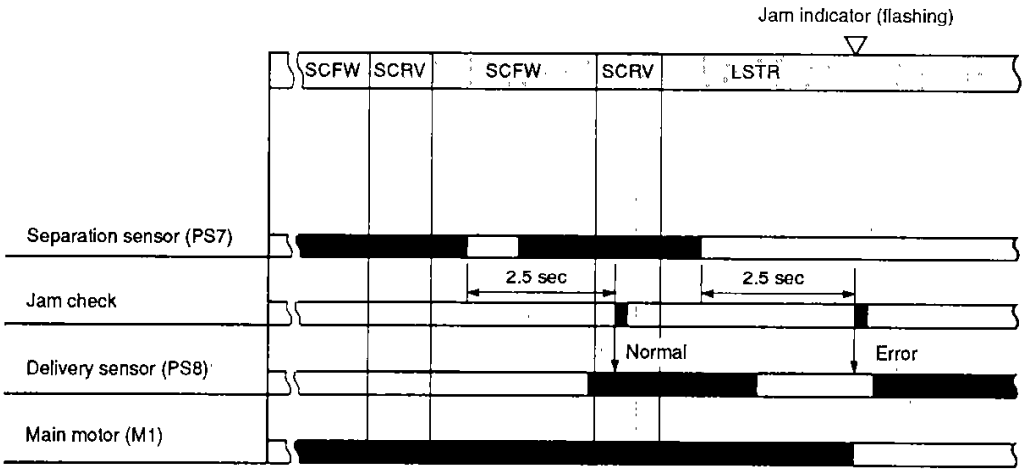
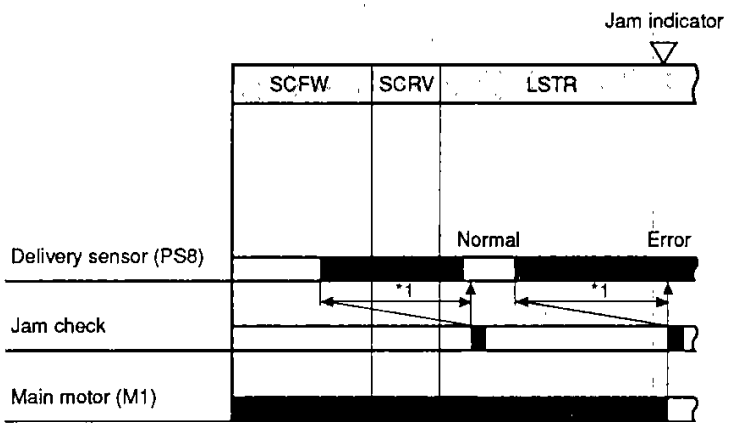


Figure 3-423 Delivery Delay Jam Sequence

7. Delivery Stationary Jam

Copy paper does not move past the delivery sensor within a specific period of time after the delivery sensor (PS8) has gone on because of feeding problems.



*1 Varies depending on the length of paper (paper length + 40 mm).

Figure 3-424 Delivery Stationary Jam Sequence

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V. POWER SUPPLY

A. Outline

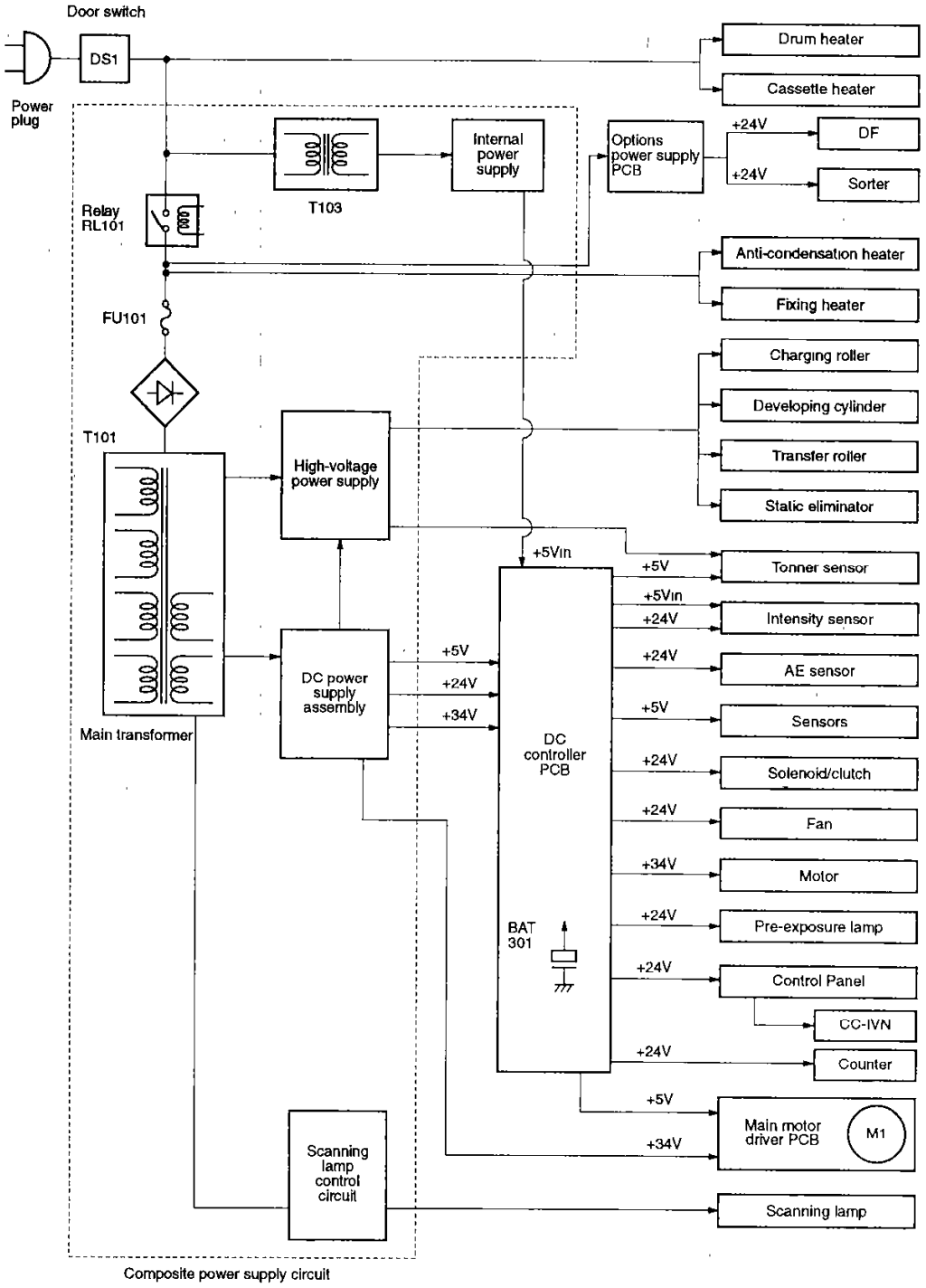

Figure 3-501

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B. Power Supply Circuit Assembly

The copier's power supply assembly is a composite power supply circuit which uses a single main transformer (T101) as the source of DC power, high-voltage power, and power for the fluorescent lamp.

AC power is supplied to the DC power supply assembly when the power switch (SW829) and the door switch are turned on.

When the power switch on the control panel is pressed, signals are sent to the composite power supply assembly to generate internal power supply +5 Vin.

In response, the microprocessor (Q512) turns on to turn on relays RL101 and RL501 to supply power.

The DC power supply generates +34 V, +24 V, and +5 V.

When the power switch is pressed for a second time, the microprocessor turns off RL501 and the main transformer; thereafter, it turns off Q503 to turn off RL101, thereby cutting off +5 Vin.

The condition deprives the DC controller circuit of DC power; to compensate for the absence of power, a lithium battery (BAT301) is provided to back up the data in the RAM (Q307) in the DC controller circuit.

Caution:
Voltage is supplied up to the AC power supply even when the power is off.

Caution:
Replace the lithium battery only with the one listed in the Parts Catalog. Use of a different battery may present a risk of fire or explosion. The battery may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, or dispose of it in fire. Keep the battery out of reach of children and discare any used battery promptly.

Reference:
The tolerances for the DC voltage are as follows:
- +34 V ±20%
- +24 V ±5%
- + 5 V ±5%

However, the above applies only when the error in the AC input is limited to ±10%.

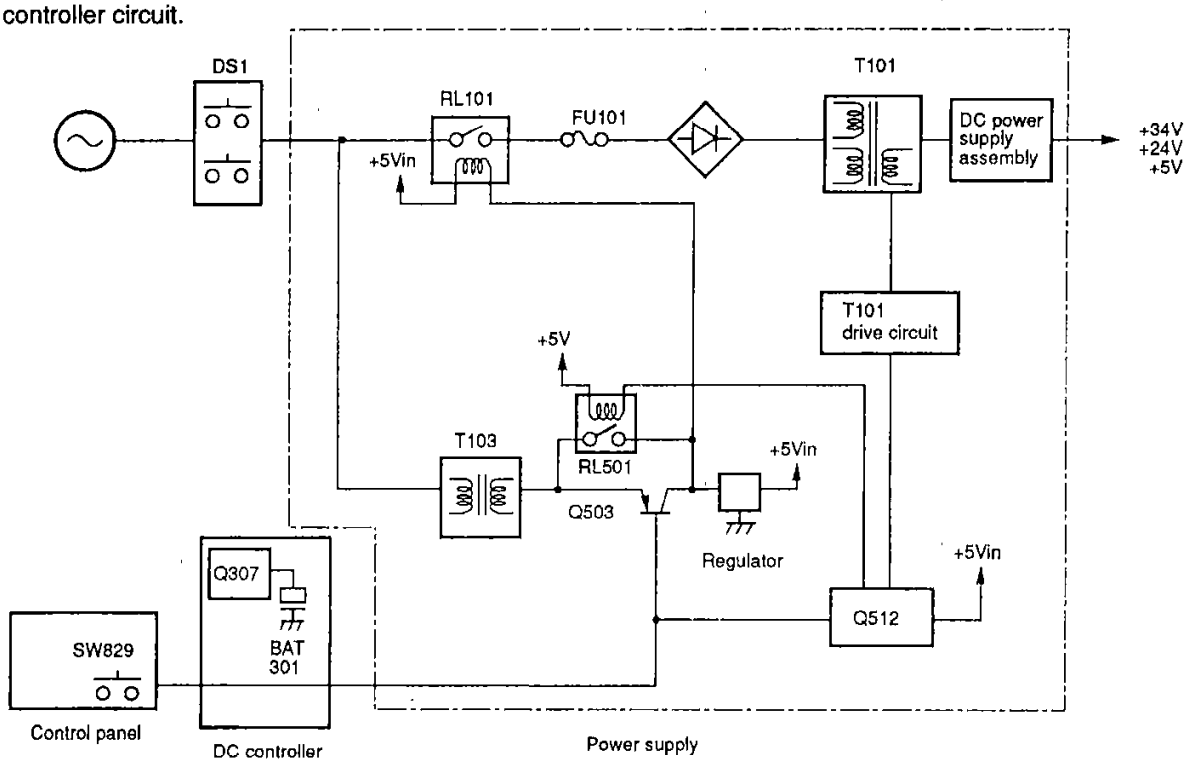

Figure 3-502

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C. Detecting Errors in the Power Supply PCB

The microprocessor (Q512) on the composite power supply PCB either displays an error message on the display by communicating with the DC controller or flashes LED501 to indicate the presence of an error if any of the following is identified.

- **Communication Error between DC Controller PCB and Composite Power Supply PCB**

If an error occurs in the communication between the DC controller PCB and the composite power supply PCB, E240 is indicated as soon as it is detected by the microprocessor on the DC controller PCB. If an error is detected by the composite power supply, the LED is flashed at intervals of 5 sec.

- **Error in the High-Voltage Output Data**

If the difference between the setting associated with the high voltage generated by the microprocessor (Q512) on the composite power supply PCB and the control value is greater than the specified value, the microprocessor (Q512) sends error data to the DC controller PCB, which in turn indicates E064.

- **Low-Voltage Output Data Error**

If the difference between the setting associated with the low voltage generated by the microprocessor (Q512) on the composite power supply PCB and the control value is greater than the specified value, the microprocessor (Q512) communicates with the DC controller PCB, which in turn indicates E803.

- **Overcurrent in the Low-voltage Power Supply**

If the composite power supply PCB identifies overcurrent because of an error in a DC load or wire is trapped, the LED is flashed at intervals of 2 sec for 20 sec.

Reference:
Normally, the LED is flashing at intervals of 0.5 sec.

D. Protection Mechanisms for the Power Supply Circuit

The composite power supply PCB is equipped with an overcurrent detection circuit; if a short circuit occurs in a load for some reason, the protection mechanism is activated to stop the output.

When the output is cut out, you may reset the output by opening the front door to turn off the door switch, correcting the load, and turning on the door switch and power switch (SW829) once again.

Caution:
Be sure to disconnect the connector (J4) of the fixing heater before resetting the output. Repeated short circuiting and resetting can cause the built-in fuse (FU101) to blow.

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VI. SERVICE MODE

A. Outline

The copier's service mode may be classified into the following six:

No.	Description
[1]	control display mode
[2]	I/O display mode
[3]	adjustment mode
[4]	operation/inspection mode
[5]	specification mode
[6]	counter mode

Table 3-600

B. Using Service Mode

1. Activating Service Mode

1) Open the front door, and insert the door switch actuator.
   - If you want to make checks for I/O display mode or the like while making copies, set the copy mode.
2) Press the service mode switch (SW302) on the DC controller with hex key.
   - The copy count indicator indicates [1].
   - While service mode is activated, the copy density indicator LED indicates the position of the fixing belt.
   - A press on the reset key de-activates service mode.

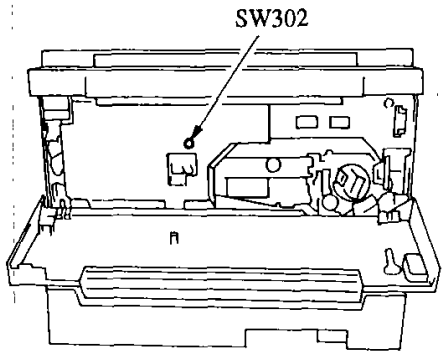

Figure 3-600

2. Selecting a Service Mode

1) While the copy count indicator is indicating [1], press a key from [1] through [6] to select the appropriate mode.
2) Press the AE key.
   - The copier activates the selected mode, and the copy count indicator indicates '301' or the like; '301' represents the first mode of those represented by [3].

3. Selecting Items

1) While the 100th digit on the copy count indicator is flashing ('301' or the like), press the keypad to select the mode to execute.
   - The copy count indicator indicates the selected number; only the 100th digit is flashing.
   - A press on the Clear key returns to selecting a mode ([3] or the like).
2) Press the Start key.
   - The copier activates the specified mode.

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4. Using Adjustment Mode [3] and Specification Mode [5]

1) Press the keypad, and change the setting.
   - The value is flashed.
   - If the value is a negative value, '%' turns on. To enter a negative value, press the % key, and then enter the number using the keypad.
2) Press the AE key.
   - The copier stores the value, and flashes it.
   - A press on the Start key starts copying operation.
3) To change the settings continuously, repeat steps 1) and 2).
4) A press on the Clear key returns to selecting items.

5. Using Operation/Inspection Mode [4]

1) A press on the Start key executes the selected service mode.
2) A press on the Stop key stops the operation and then returns to selecting items.
   - If the mode is of a type that stops automatically, the operation stops and returns to selecting items automatically.

6. Clearing Stored Error Code

If E000, E001, E002, E003, E004, or E007 is indicated, remove the cause of the error, and clear the back-up information.

1) Open the front door, and insert the door switch actuator.
2) While holding down the service mode switch (SW302) on the DC controller with a hex key, press the power switch.
3) In about 2 sec, the power goes off; press the power switch once again.

Note:
The copier turns itself off automatically if it detects E000, E001, E002, E003, or E004, not responding to a press on the power switch. To check the error in service mode, perform the above after disconnecting the connector of the heater.

7. Recording on the Service Mode Label

Figure 3-601 shows the label attached behind the front door. At the factory, each machine is adjusted, and the settings used at the time are recorded on the label.

You must record new settings if you changed them in the field. If you replaced the DC controller, be sure to store the settings recorded on the label in service mode.

In addition, if you have replaced the drum unit or composite power supply, enter the settings recorded on the service label attached to the new drum unit or composite power supply and, at the same time, copy the setting on the service label (Figure 3-601).

No.		TYP		
301	AE_LIGHT			
302	AE_SHIFT			
303	AE_SLOPE			
304	HEATER			
305	REGIST			
306	LE_BLANK			
307	REGIST_R			
308	LE_BLANK_R			
309	TE_BLANK			
310	TE_BLANK_MF			
311	B_HOME			
312	B_HOME_RE			
313	PRIMARY			
314	IP_OFST			
315	PW_OFST			
316	IP_ADJ			
317	PH_ADJ			
318	ATVC_STD			
319	MF_LOOP			
320	C1_LOOP			
321	C2_LOOP			
322	C3_LOOP			
323	C1_CL_OFF			
324	C2_CL_OFF			
325	C3_CL_OFF			
326	LIGHT			

Figure 3-601

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C. Control Display Mode [1]

- To select an item, press the appropriate key on the keypad and then the Start key.
- To clear an item, press the Clear key.
- A press on the Start key while a service mode is indicated executes the respective operation.

No.	Description	Remarks
101	Jam location	The display indicates the location of the jam on the copy count indicator; see below.
102	Fixing belt sensor ON time	unit: ms The actual ON time is the value that is obtained by multiplying the indicated value by 2.56; the copy density indicator indicates the position of the belt.
103	Power supply voltage	unit: V
104	Primary charging voltage	unit: V The actual primary charging voltage is the value obtained by turning the displayed value into negative and subtracting 1000 from it.
105	Primary charging current	unit: μA
106	Intensity	unit: lux The actual intensity (lux) is the value obtained by dividing the displayed value by 100.
107	Jam history	See below.
108	Error history (E code)	The display indicates a history of the most recent three errors; a press on [1], [2], or [3] on the keypad indicates the most recent, second recent, and third recent errors respectively.
109	Temperature detected by fixing main thermistor (TH1)	unit: °C
110	Temperature detected by fixing sub thermistor (TH2)	unit: °C
111	Temperature detected by ambient thermistor (TH301; DC controller)	unit: °C
112	AE sensor output	Normal if the value changes for each original in AE mode.
113	ROM version number	Indicates the parts number of the ROM.
114	ROM release number	Indicates the version of the program.
116	Intensity at time of scanning	Normal if between 68 and 72.

Table 3-601

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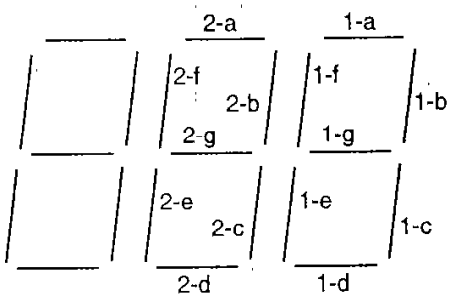
No. 101 Jam Location Indicator

In this mode, the copy count indicator turn on to indicate the type of jam. If both delay and stationary are indicated for the same sensor, i.e., at time of power-on or standby, the copier has detected copy paper when it was not making copies.



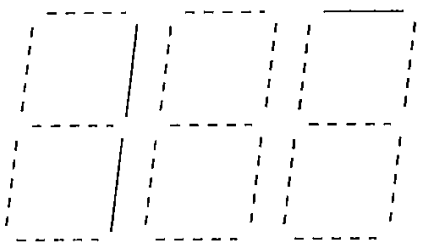
LED (ON)	Jam
1-a	pre-registration delay jam
1-b	pre-registration stationary jam
1-c	separation delay jam
1-d	separation stationary jam
1-e	delivery delay jam
1-f	delivery stationary jam
1-g	not used
2-a	door open
2-b	not used
2-c	not used
2-d	not used
2-e	not used

Table 3-602

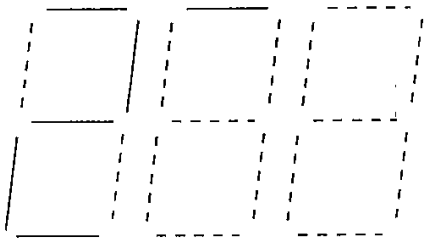
No. 107 Jam History

The 100th digit of the copy count indicator indicates how recent the jam is; to indicate the jam that occurred second most recently, press [2] on the keypad. As in 'No. 101' (jam location), the 10th digit indicates the type of jam.

Example: The most recent jam is a pre-registration delay jam.



The second most recent jam is a door open jam.



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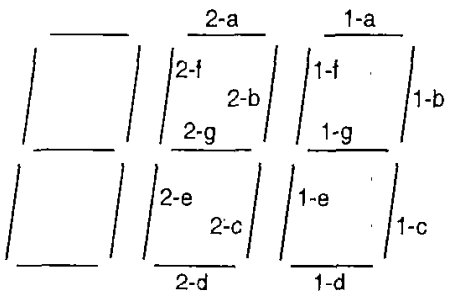
D. I/O Mode [2]

- Press [2] on the keypad and the AE key to activate I/O display mode.
- To clear an item, press the Clear key.
- A press on the Start key while a service mode is indicated executes the respective operation.

No.	Description	Remarks
201	Port C digit 4	When the mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
202	Port C digit 5	When the mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
203	Port C digit 6	When this mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
204	Port C digit 7	When this mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
205	Port H	When this mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
206	Fixing main thermistor (TH1) voltage	Indicates the measurement of voltage using 0 through 255.
207	Fixing sub thermistor (TH2) voltage	Indicates the measurement of voltage using 0 through 255.
208	AE sensor voltage	Indicates the measurement of voltage using 0 through 255.
209	Ambient temperature thermistor (TH301) voltage	Indicates the measurement of voltage using 0 through 255.
210	Multifeeder paper width sensor voltage	Indicates the measurement of voltage using 0 through 255.
211	Intensity sensor voltage	Indicates the measurement of voltage using 0 through 255.
212	Copy density correction knob voltage	Indicates the measurement of voltage using 0 through 255.
213	Toner level sensor	Indicates the measurement of voltage using 0 through 255.

Table 3-603

LED (copy count indicator; from 201 to 205)



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No. 201/202/203/204 Port C Digital Display

No.	LED	Description	Remarks
201	1-a	Cassette 2 connect	ON: connected
	1-b	Cassette 2 connect	ON: connected
	1-c	Options counter open circuit	ON: open
	1-d	Jumper connector 3	ON: connected
	1-e	Cassette size 1 (cassette 2)	ON: light-blocking plate present
	1-f	Cassette size 2 (cassette 2)	ON: light-blocking plate present
	1-g	Cassette size 3 (cassette 2)	ON: light-blocking plate present
	2-a	Cassette size 4 (cassette 2)	ON: light-blocking plate present
	2-b	Not used	
202	1-a	Main motor lock	ON: locked
	1-b	Control Card IV connect	ON: connected
	1-c	Total counter connect	ON: connected
	1-d	Option counter connect	ON: connected
	1-e	Cassette size 1 (cassette 3)	ON: light-blocking plate present
	1-f	Cassette size 2 (cassette 3)	ON: light-blocking plate present
	1-g	Cassette size 3 (cassette 3)	ON: light-blocking plate present
	2-a	Cassette size 4 (cassette 3)	ON: light-blocking plate present
	2-b	Not used	
203	1-a	Service mode switch	ON: pushed
	1-b	Jumper connector 1	ON: connected
	1-c	Jumper connector 2	ON: connected
	1-d	Total counter open circuit	ON: open
	1-e	Cassette size 1 (cassette 1)	ON: light-blocking plate present
	1-f	Cassette size 2 (cassette 1)	ON: light-blocking plate present
	1-g	Cassette size 3 (cassette 1)	ON: light-blocking plate present
	2-a	Cassette size 4 (cassette 1)	ON: light-blocking plate present
	2-b	Cassette 3 vertical path sensor (PS3cu)	ON: light-blocking plate present
204	1-a	Right door open/closed sensor (PS10)	ON: light-blocking plate present (paper present)
	1-b	Separation sensor (PS7)	ON: light-blocking plate present (right door closed)
	1-c	Cassette paper sensor (PS4)	ON: light-blocking plate present (paper absent)
	1-d	Multifeeder paper sensor (PS5)	ON: light-blocking plate present (paper absent)
	1-e	Cassette 2 paper sensor (PS2cu)	ON: light-blocking plate present (paper absent)
	1-f	Cassette 3 paper sensor (PS4cu)	ON: light-blocking plate present (paper absent)
	1-g	Delivery sensor (PS8)	ON: light-blocking plate present (paper present)
	2-a	Cassette right door open/closed sensor (PS5cu)	ON: light-blocking plate present (right door closed)
	2-b	Cassette 2 vertical path sensor (PS1cu)	ON: light-blocking plate present (paper present)

Table 3-604

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No. 205 Port H Display

LED	Description	Signal	Connector	Remarks
1-a	Registration sensor	RPD	J314-2	ON: paper present
1-b	PCB check	PCBCH*	J353-6	For factory only
1-c	Lens home position sensor (PS2)	LHP	J307-2	ON: at HP
1-d	Blank shutter home position sensor (PS3)	BSHP	J315-2	ON: at HP
1-e	Fixing film sensor (PS9)	FFD	J304-12	ON film detected
1-f	Heater on detection (triac short circuit)	HTON*	J324-2	ON: heater ON detected
1-g	Composite power supply ACK	CP-ACK	J302-12	ON: acknowledged
2-a	AC pulse	AC-MNTR	J302-14	ON: H, OFF: L
2-b	ROM serial input	EEP-SI	J323-4	

Table 3-605

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E. Adjustment Mode [3]

- To activate adjustment mode, press [3] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To change the setting, press the appropriate keys on the keypad and then the AE key.
- To cancel an item, press the Clear key.
- A press on the Start key executes the respective operation.
- If the value is a negative value, '%' is turned on; to enter a negative value, press the % key and the value on the keypad.

No.	Description	Settings	Remarks
301	Automatic lamp intensity adjustment for AE scans		See p. 3-83.
302	Copy density (development bias) reference point adjustment for AE mode	–26 ~ +26	See p. 3-83. default: 0
303	Copy density (development bias) slope adjustment for AE mode	–26 ~ +26	See p. 3-83. default: 0
304	Fixing heater resistance storage		See p. 3-88.
305	Leading edge margin adjustment (registration roller ON timing)	0 ~ 63	A higher value delays the copy paper in relation to the image, reducing the margin. default: 32 unit: 0.27 mm
306	Leading edge non-image width adjustment (timing at which blank open/close shutter for blank exposure is closed)	0 ~ 63	A higher setting increases the leading edge non-image width. default: 32 unit: 0.27 mm
307	Leading edge registration adjustment for right face in page separation (registration roller ON timing)	0 ~ 63	A higher setting delays the copy paper in relation to the image. default: 32 unit: 0.27 mm
308	Leading edge margin adjustment for right face in page separation (timing at which blank shutter is closed)	0 ~ 63	A higher setting increases the leading edge margin. default: 32 unit: 0.27 mm
309	Trailing edge non-image width adjustment (timing at which open/close shutter for blank exposure is opened)	0 ~ 63	A higher setting reduces the trailing edge margin. default: 32 unit: 0.27 mm
310	Leading edge non-image width for multifeeder (timing at which the open/close shutter for blank exposure is opened)	0 ~ 63	A higher setting reduces the trailing edge margin. default: 32 unit: 0.27 mm

Table 3-606-1

Note: A press on the Start key when in No. 305, 306, 307, or 308 makes copies in the mode that has been effective before the activation of the mode; when executing No. 307 or 308, it is recommended that page separation mode be selected before activating service mode.

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No.	Description	Settings	Remarks
311	Left/right margin adjustment (Direct; home position for slide shutter for blank exposure)	0 ~ 15	A higher setting increases the margin on both left and right. default: 8 unit: 0.27 mm
312	Left/right margin adjustment (Reduce; travel distance of slide shutter for blank exposure)	–10 ~ +10	A higher setting increases the margin on both left and right. default: 0 unit: 0.27 mm
313	Primary output voltage correction (corrects output voltage determined by APVC)	–16 ~ +16	Enter the setting recorded on the label after replacing the drum cartridge.
314	APVC measured current shift (corrects the results of APVC)	–40 ~ +40	Enter the setting recorded on the label after replacing the drum cartridge.
315	Voltage correction for measurement in APVC (corrects voltage for measurement applied at time of APVC)	–16 ~ +16	default: 0 unit: 16 V Enter the value recorded on the label on the composite power supply when replacing the composite power supply.
316	Measurement current correction for APVC (corrects current measured at time of APVC)	–10 ~ +10	default: 0 Enter the value recorded on the label on the composite power supply when replacing the composite power supply.
317	Fluorescent lamp pre-heating current adjustment	–9 ~ +9	default: 0 Enter the value recorded on the label on the composite power supply when replacing the composite power supply.
318	Transfer output voltage adjustment (corrects transfer voltage determined by ATVC)	–4 ~ +4	default: 0 unit: 10 V Convert the value recorded on the label on the composite power supply as follows and change the value recorded on the service label; then, enter the value when replacing the composite power supply. Label → Input: 1 → 0, 2 → –1, 3 → –2, 4 → –3, 5 → –4 Label → Input: 6 → +1, 7 → +2, 8 → +3, 9 → +4
319	Arch adjustment when multifeeder is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm
320	Arch adjustment when cassette2 is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm
321	Arch adjustment when cassette 2 is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm
322	Arch adjustment when cassette 3 is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm

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No.	Description	Settings	Remarks
323	Pick-up clutch (CL2) off timing adjustment	0 ~ 63	For factory only default: 32
324	Cassette 2 pick-up clutch (CL1cu) off timing adjustment	0 ~ 63	For factory only default: 20
325	Cassette 3 pick-up clutch (CL1cu) off timing adjustment	0 ~ 63	For factory only default: 20
326	Scanning lamp intensity adjustment	0 ~ 76	For factory only default: 75

Table 3-606-2

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F. Operation/Inspection Mode [4]

- To activate operation/inspection mode, press [4] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To execute the mode, press the Start key.
- To stop the operation, press the Stop key; the copier returns to selecting an item.
- If the mode is of a type that stops automatically, the copier automatically returns to selecting an item.

No.	Description	Remarks
401	Developing assembly idle rotation	Use it after supplying toner at time of installation.
402	Primary roller cleaning	
403	Transfer roller cleaning	
404	Fixing tension roller	Use it to adjust the fixing film drive roller pressure for the upper fixing unit. (See p. 4-33.) Fix the fixing tension roller and cause the fixing film to rotate idly. The ON period of the fixing film sensor is indicated by the copy count indicator, and the film position is indicated by the copy density indicator. Another press on the Start key checks the position of the fixing film automatically.
405	Fixing film initial rotation mode	Execute the mode when you have replaced the fixing film or the upper fixing unit to return the fixing film to its appropriate position. (See p. 4-41.) The film stops as soon as it reaches the appropriate position automatically. The position of the film in travel is indicated by the copy density indicator.
406	Nip check	Use tit to check the nip or when adjusting the lower fixing roller. (See p. 4-43.)
407	Fixing film displacement correction	The fixing film stops when it reaches the appropriate position or when 30 sec has passed. The position of the film in travel is indicated by the copy density indicator, and the fixing film ON period is indicated by the copy count indicator. The position is normal if the copy density indicator indicates '5' when the film stops; otherwise, check the fixing film and the tension roller. If the fixing film becomes displaced and E007 is indicated, try this mode. (This will prove to be highly useful if displacement occurs because of a minor accident.)
408	Scanning lamp ON check	A press on the Start key keeps the lamp on after about 1.5 sec.
409	Control panel indicators ON	
410	Scanner forward stop	
411	Pre-exposure lamp on	
450	Back-up RAM clear	See p. 3-90.

Table 3-607

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G. Specification Settings Mode [5]

- To activate specification settings mode, press [5] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To change the setting, press the appropriate keys on the keypad and then the AE key.
- To clear an item, press the Clear key.
- A press on the Start key executes the respective operation.

No.	Description	Remarks
501	Characteristics storage for multifeeder paper width sensor	See p. 3-87.
502	Copy density notation switching (9/17 steps)	9 steps: 0 17 steps: 1 default: 0 (9 steps)
503	Auto power-off cancel	• When '1' is entered on the keypad, the notation will be 'ON', activating the auto power-off function. • When '0' is entered on the keypad, the notation will be 'OFF', de-activating the auto power-off function. default: on. The auto power-off period is set in user mode; since the copier's WAIT time is 0, it is best to keep the auto power-off mechanism to be enabled.
504	Copy count upper limit	settings: 0 to 99 default: 0 When set to '0', the upper limit will be 100 copies.
505	Universal cassette paper size	See p. 3-87. settings: 0 to 14 default: 0
506	Separation static eliminator output voltage switching	002: 2.5 kV 004: 4 kV default: 0
507	Fixing forced wait	When activated, the period of initial rotation is increased; activate it if the fixing on the first copy is poor because of low temperature conditions. 0: disabled 1: enabled default: 0
508	Fixing control temperature switching	001: 225°C 002: 215°C 003: 200°C default: 002 See p. 3-89.

Table 3-608

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H. Counter Mode [6]

- To activate the mode, press [6] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To cancel an item, press the Clear key.
- A press on the Start key executes the respective service operation.
- To obtain the actual count, multiply the indication by 100.

No.	Description	Remarks
601	Large copy counter	
602	Small copy counter	
603	Total copy counter/drum counter	For North America only; indicates the use of the drum unit in terms of copies made, and cleared when the drum unit is replaced.

Table 3-609

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VII. ELECTRICAL

1 After Replacing the PCB

You must make the adjustments that follow whenever you have replaced the following PCBs.

a. DC Controller PCB

1) Enter the value recorded on the service mode label attached behind the front door in service mode ('3'; see p. 3-77).
2) Adjust the multifeeder paper width sensor; see p. 3-87.
3) Adjust the intensity of the scanning lamp; see p. 3-83.
4) Adjust AE; see p. 3-83.

As necessary, change the settings in service mode and user mode.

Caution:
Be sure to record all new settings that you have entered.

b. Composite Power Supply PCB

1) Enter the values recorded on the label attached to the composite power supply in service mode ('No. 315' through 'No. 318'; '3' of adjustment mode); see p. 3-77.

Be sure to record any new settings on the service mode label.

c. AE Sensor PCB

1) Adjust AE; see p. 3-83.

Caution:
Be sure to record all new settings that you have entered.

d. Intensity Sensor PCB

1) Adjust the intensity of the scanner lamp; see p. 3-83.
2) Adjust AE; see p. 3-83.

Caution:
Be sure to record all new settings that you have entered.

2 Adjusting the Scanning Lamp Intensity

Turn VR301 on the DC controller as follows whenever you have replaced the scanning lamp, intensity sensor, or DC controller.

1) Set Test Sheet NA3 or NB3 on the copyboard, and close the copyboard cover.
2) Make copies in continuous mode with AE off and at copy density 5.
3) Turn VR301 on the DC controller so that the image is optimum.
   - If the image is too light, turn the VR slightly clockwise.
   - If the image is too dark, turn the VR slightly counterclockwise.

Reference:

1. The term *optimum image* refers to a copy whose gray scale No. 8 corresponds to gray scale No. 4 through 7 of the Test Sheet without fogging.
2. An excessive turn on the VR could put out the lamp. If that is the case, turn it clockwise until it stops, and turn off and then on the power for re-adjustment.

Caution:
Be sure to execute AE adjustment after these adjustments.

3 AE Adjustment

Adjust the AE mechanism using the following three service modes:

① AE Basic Adjustment
- No. 410 scanner forward stop
- No. 408 scanning lamp on check
- No. 208 AE sensor voltage display
- No. 301 lamp intensity automatic adjustment at time of AE scan

② Copy Density in AE Mode (No. 302) (developing bias) reference adjustment

③ Copy Density in AE Mode (developing bias) slope adjustment

If the copy density is not optimum after executing AE basic adjustment ① (No. 410, No. 408, No. 208, No. 301), execute ② and then , if necessary, ③, i.e., No. 302 and No. 303.

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If you have replaced the AE sensor, scanning lamp, or DC controller, adjust the scanning lamp intensity (VR 301); then, execute AE basic adjustment ①, scanner forward stop (No. 410), scanning lamp on check (No. 408), AE sensor voltage display (No. 208), and lamp intensity automatic adjustment (No. 301).

Go through the following when making adjustments; Table 2-201 is a list of service modes excluding scanner forward stop (No. 410, list of service modes excluding scanner forward stop (No. 410), scanning lamp on check (No. 408), and AE sensor voltage display (No. 208).

a. AE Basic Adjustment (No. 410, No. 408, No. 208, No. 301)

In this adjustment, the intensity of the scanning lamp is read by the lamp intensity sensor and the voltage of the AE sensor unit is adjusted by VR 391 on the DC controller. After the adjustment, execute the lamp intensity automatic adjustment for AE scans.

1) Place the Test Sheet NA-3 or NB-3 on the copyboard, and close the copyboard.
   Press the service mode switch (SW302) to activate service mode.
2) Enter '4' using the keypad, and press the AE key.
   • The display indicates '401'.
3) Enter '410' using the keypad.
   • The display indicates '410'.
4) Press the Start key once.
   • The scanner moves forward.

Caution:
Each press moves the scanner forward; do not press more than once.

5) Enter '408' using the keypad, and press the Start key.
   • The display indicates 'ON', and turns off after about 1.5 sec.
6) Press the Clear key twice.
   • The display indicates '201'.
7) Enter '208' using the keypad, and press the start button.
   • The display indicates '208'.
8) Press the Start key.
   • The display indicates '0–255'.
9) Turn VR391 on the DC controller so that the reading on the display is '82–87'.

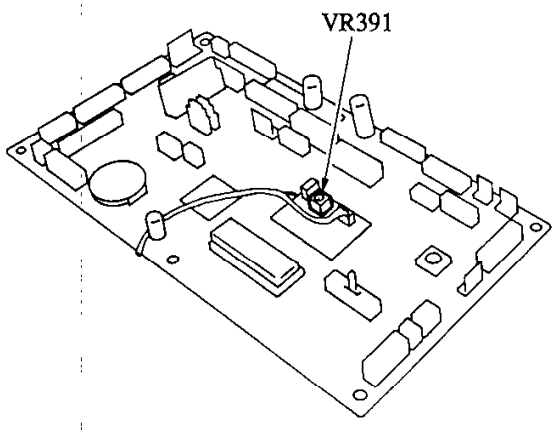

Figure 3-701 DC Controller PCB

10) Turn off and on the power switch.
   • This turns off and on the scanning lamp.
11) Press the service mode switch.
   • The copier enters service mode, and the display indicates '1'.
12) Enter '3' using the keypad, and press the AE key.
   • The display indicates '301'.
13) Press the Start key.

Caution:
Wait until initial rotation is over.

   • After initial rotation is over, the AE indicators starts to flash.
14) Press the AE key; the following take place to indicate that the optimum intensity is adjusted automatically:
   • The AE indicator stops flashing and remains on.
   • The scanner moves to the AE measurement position.
   • When the intensity has stabilized, the reading taken by the AE sensor is stored in memory.
   • The lamp is turned off, and the scanner is returned to its original position.
15) When the above has ended, press the clear key twice.
   • The display indicated '3'.
16) Enter '1' using the keypad, and press the AE key.
   • The display indicates '101'.
17) Enter '116' using the keypad, and press the Start key.

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- Make sure that the display indicates '68–72'; otherwise, start with step 2) of operation/ inspection mode for re-adjustment.

b. Copy Density (development bias) Reference Point Adjustment for AE Mode (No. 302)

1) If the indication is not in the 300's, activate adjustment mode (service mode) as in the case of 'No. 301'.
2) Press [2] on the keypad.
   - The copier indicates '302'.
3) Press the Start key.
   - The copier indicates the current setting.
4) Change the setting using the keypad, and press the AE key.
   - A higher setting causes the AE copies to be darker.
   - default: 0
     range: –26 to +26
   - If the setting is negative, the '%' is indicated. To enter a negative value, press the '%' key, and enter a setting.
   - When the copier has read the setting, the indication stops flashing and remains on.
5) Record the new setting on the service mode label.
6) To end, press the Clear key.
   - The copier returns to selection mode, and indicates '302'.
   - As necessary, execute 'No. 303'.

c. Copy Density (development bias) Slope Adjustment for AE Mode (No. 303)

1) If the indication is not in the 300's, activate adjustment mode (service mode) as in the case of No. 301.
2) Press [3] on the keypad.
   - The copier indicates '303'.
3) Press the Start key.
   - The copier indicates the current setting.
4) Change the setting with the keypad, and press the AE key.
   - A larger setting causes the AE copies to be darker.
   - default: 0
     range: –26 to +26
   - If the setting is negative, '%' is indicated. To enter a negative value, press the '%' key, and enter a setting.
   - When the copier has read the setting, the indication stops flashing and remains on.
5) Record the new settings on the service mode label.
6) Press the Reset key.
   - The copier de-activates service mode.

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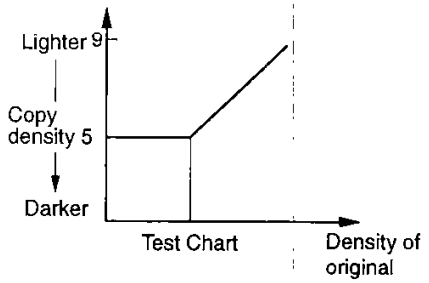
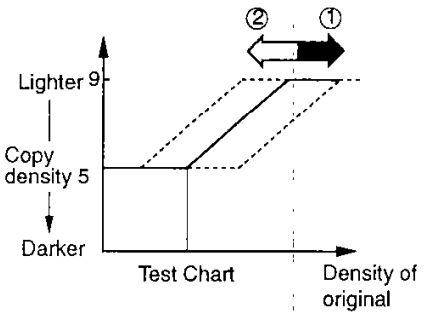
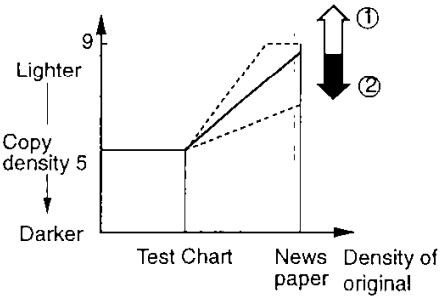
Item	Function	Description	Remarks
No. 301	Automatic lamp intensity adjustment for AE scans		The lamp intensity is automatically adjusted so that the copies of the Test Chart will be made at density 5.
No. 302	Copy density (development bias) reference point adjustment for AE mode		① A lower setting in service mode causes the AE copies to be darker. ② A higher settings in service mode causes the AE copies to be lighter. default: 0 range: –26 to +26
No. 303	Copy density (development bias) slope adjustment for AE mode		① A higher setting in service mode causes copies of a newspaper to be lighter. ② A lower setting in service mode causes copies of a newspaper to be darker. default: 0 range: –26 to +26

Table 3-701

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4 Adjusting the Multifeeder Paper Width Sensor

Store the characteristic of the multifeeder paper width sensor in service mode (501).

Perform the adjustment when you have replaced the sensor if the sensor fails to identify the paper size correctly.

1) Open the front door, and insert the door switch actuator into the door switch.
2) Press the service mode switch (SW302) with a hex key.
   - The copier activates service mode, and indicates '1'.
3) Press [5] on the keypad.
   - The copier indicates '5'.
4) Press the AE key.
   - The copier activate specification settings mode, and indicates '501'.
5) Press the Start key.
   - The copier indicates 'A3'.
6) A press on the keypad changes the indication as shown in Table 3-702. Select the size of paper to change. (Do not select CLR.)
   - The indication will start to flash if you select a size which has not been stored.
   - If you press the Start key when 'CLR' is indicated, the copier clears all stored settings and returns the default settings.
7) Shift the guide on the multifeeder to suit the size to be stored.
   - Be sure to hear a click.
8) Press the AE key.
   - When the setting is stored, the indication stops flashing and remains on.
9) Press the Reset key.
   - The copier de-activates service mode.

Key	Indication	Remarks
1	A3	A3
2	Ldr	Ledger
3	b4	B4
4	LGL	Legal
5	A4r	A4R
6	b5r	B5R
7	A5r	A5R
8	Sr	Statement R
9	JPC	Postcard (100 mm wide)
0	CLr	Clear (clears settings)

Table 3-702

Reference:

1. When storing JPC (No. 9), adjust the guide width to the smallest width.
2. At time of shipment, the settings are A3, A4R, and JPC; the copier retains the characteristics curves of the corresponding three points and uses them when identifying the size of paper during copying operation. When you store a size other than these three, the copier takes the new settings into account when making computations; for this reason, it is best to store sizes that the user tends to use most frequently.

5 Setting the Paper Size for the Universal Cassette

If the paper size lever for the cassette is at the universal cassette, set the appropriate paper size in service mode (505).

1) Open the front door, and insert the door switch actuator into the door switch.
2) Press the service mode switch (SW302) with a hex key.
   - The copier activates service mode, and indicates '1'.
3) Press [5] on the keypad.
   - The copier indicates '5'.
4) Press the AE key.
   - The copier enters machine settings mode, and indicates '501'.
5) Press [0] and [5] on the keypad.
   - The copier indicates '505'.
6) Press the Start key.
   - The copier indicates the current setting for the universal cassette.
7) Select the size to store using the keypad according to Table 3-703.
8) Press the AE key to store the new setting.
9) Press the Reset key.
   - The copier de-activates service mode.

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Keypad	Paper	Size
0	Bolivian OFFICIO	355.0 × 216.0
1	Argentine OFFICIO	340.0 × 220.0
2	Argentine LEGAL	340.0 × 220.0
3	Australian FOOLSCAP	337.0 × 206.0
4	FOOLSCAP	330.2 × 215.9
5	FOLIO	330.0 × 210.0
6	Government LEGAL	330.2 × 203.2
7	Ecuadorian OFFICIO	320.0 × 220.0
8	OFFICIO	317.0 × 216.0
9	Argentine LETTER-R	280.0 × 220.0
10	Korean Govern-ment-R	268.0 × 190.0
11	Government LETTER-R	266.7 × 203.2
12	Argentine LETTER	220.0 × 280.0
13	Government LETTER	203.2 × 266.7
14	Korean Government	190.0 × 268.0

Table 3-703

6 Storing the Fixing Heater Resistance

You must store the resistance of the fixing heater as follows whenever you are replacing the fixing upper unit; do not change the setting unless you have replaced the heater.

1) Take notes of the resistance (ohm) of the fixing heater recorded on the rear side plate of the fixing upper unit.
2) Attach the fixing upper unit to the copier.
3) Open the front door, and insert the door switch actuator into the door switch.
4) Press the service mode switch (SW302) with a hex key.
   - The copier activates service mode, and indicates '1'.
5) Press [3] on the keypad.
   - The copier activates adjustment mode, and indicates '3'.
6) Press the AE key.
   - The copier enters adjustment mode, and indicates '301'.
7) Press [0] and [4] on the keypad.
   - The copier indicates '304'.
8) Press the Start key.
   - The copier indicates the current setting.
9) Enter the measured reading, and press the AE key to store.
10) Record the new setting on the service mode label.
11) Press the Reset key.
   - The copier de-activates service mode.

unit: ohms; for a 100V model, enter a value which is the result of the measured resistance multiplied by 100.
for a 115/220/240V model, enter a value which is the result of the measured resistance multiplied by 10.

range (default)

100V:	640 to 880 (760)
115V:	84 to 116 (100)
220/240V:	235 to 325 (280)

Reference:

1. For a 100V model, if the measured resistance is 7.6 ohms, enter '760'.
   For a 115/220/240V model, if the measured resistance is 9.5 ohms, enter '095'; if 28 ohms, enter '280'.
2. The power supplied to the fixing heater is phase-controlled based on the voltage of the power supply and the resistance being stored.

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7 Setting the Fixing Heater Temperature Control Value

You can change the fixing temperature control value in the field in any of the following two ways:

6.1 When Replacing the Fixing Upper Unit

Set the initial control temperature value for the 1st to 4th copies under No. 508 of service mode for when the temperature of the fixing heater is less than 120°C at time copying is started.

1) Take notes of the value recorded on the label on the fixing upper unit heater stay (rear).

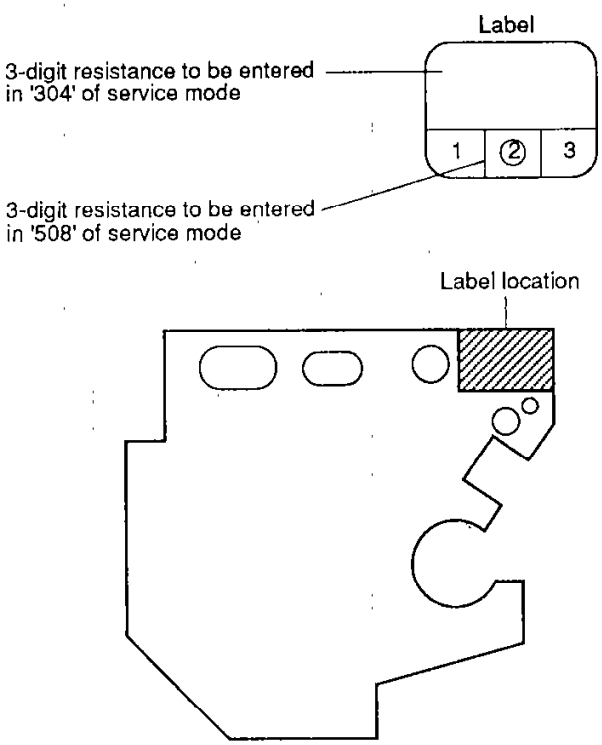

Figure 3-702 Heater Stay Side Plate (rear)

2) Replace the fixing upper unit.
3) Press the service switch (SW302).
   • The copier enters service mode and indicates '1'.
4) Enter '5' using the keypad.
   • The display indicates '5'.
5) Press the AE key, and enter '8' on the keypad.
   • The display indicates '508'.
6) Press the Start key.
   • The display indicates '001', '002', or '003'.
7) Enter the control value you have recorded in step 1) using the keypad.

Example:

If the value recorded on the heater stay (rear) of the fixing upper unit is '2',

a. Enter '2' using the keypad to change the value.
b. Press the AE key.
c. Press the Reset key.

Caution:

You must set the resistance of the heater also when replacing the fixing upper unit.

6.2 When Replacing the Fixing Film

1) Replace the fixing film.
2) Replace the copy paper in the cassette with A3 size copy paper.
3) Press the service switch (SW302).
   • The copier enters service mode and indicates '1'.
4) Enter '5' using the keypad, and press the AE key.
   • The display indicates '501'.
5) Enter '5' using the keypad, and press the Start key.
   • The display indicates '001', '002', or '003'.
6) Enter '2' using the keypad, and press the Clear key.
8) Make 20 copies or more in A3 to warm up the entire fixing upper unit.

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9) Place the Test Chart NA-3 or NB-3 on the copyboard, and put a blank sheet of paper (A3) to cover about 2/3 of the Test Chart (bottom).

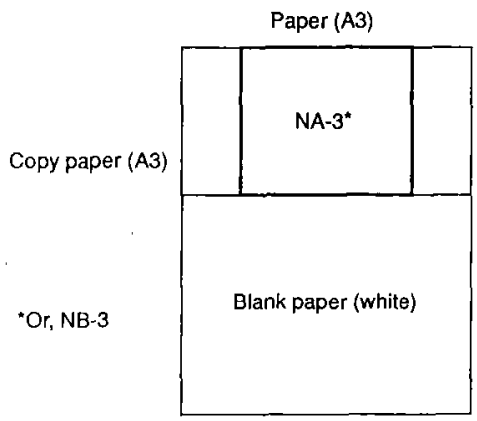

Figure 3-703

10) Enter '4' using the keypad, and set the copy count.
11) Press the service switch (SW302), thereby recalling the temperature of the No. 1 thermistor.
    • The display indicates '1'.
12) Press the AE key, and enter '9' on the keypad.
    • The display indicates '109'.
13) Press the Start key.
    • Make 4 copies in A3.
14) When copying is finished, take note of the temperature reading in the display. Press the Start key once again when the reading is 116°–118°C.
    • Make four copies in A3.
15) Check if offset has occurred.
    • If offset is noted, change the temperature control value of the fixing heater. Go to step 20).
    • If offset is not noted, go to step 27).
16) Press the Clear key, and enter '5' using the keypad.
    • The display indicates '508'.
17) Press the AE key, and enter '8' using the keypad.
    • The display indicates '508'.
18) Press the Start key.
    • The display indicates '002'.
19) Enter '3' using the keypad.
    • The display indicates '003'.
20) Press the AE key.
    • The setting is changed.
21) Press the Reset key.
    • The copier leaves service mode.

8 Clearing the Back-Up RAM

1) Open the front door, and insert the door switch activator into the door switch.
2) Press the service mode switch (SW302) with a hex key.
    • The copier activates service mode, and indicates '1'.
3) Press [4] on the keypad.
    • The copier indicates '4'.
4) Press the AE key.
    • The copier activates operation/inspection mode, and indicates '401'.
5) Press [5] and [0] on the keypad.
    • The copier indicates '450'.
6) Press the Start key.
    • The copier indicates 'noP'.
7) Press the AE key.
    • The indication changes to 'EE'.
8) Press the Start key.
    • The indication returns to '450'.
9) Turn off and on the power switch.
    • The copier clears the backup RAM, and returns the default settings.

Reference:
To cancel RAM clearing, press the Clear key and then the Reset key. To cancel it after having finished step 8), press the Start key once again; when 'noP' is indicated, press the Start key once again.

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VIII. SELF DIAGNOSIS

The microprocessor on the copier's DC controller is provided with a self diagnosis mechanism that checks the condition of the machine (sensors, in particular). The copier runs self diagnosis and, when it identifies an error, indicates a code that represents each specific error. If the copier finds an error associated with E000, E001, E002, E003, and E004, it automatically shuts itself off (error auto power-off).

Code	Cause	Description
E000	• Thermistor (TH1, TH2; displacement, poor contact, open circuit) • Fixing heater (H1; open circuit, crack) • Thermal fuse (FU1; malfunction) • Triac (faulty) • DC controller (faulty)	• The detection temperature of the thermistor (TH1) does not reach 50°C 1 sec after the Copy Start key has been pressed. • The detection temperature of the main thermistor (TH1) does not reach 90°C 2 sec after the Copy Start key has been pressed. • The detection temperature of the sub thermistor (TH2) does not reach 90°C 1 sec after the Copy Start key has been pressed.
E001	• Thermistor (TH1, TH2; short circuit) • Triac (faulty) • DC controller (faulty)	• The detection temperature of the thermistor (TH1) exceeds 250°C during copying operation. • The detection temperature of the sub thermistor (TH2) exceeds 260°C during copying operation. • The detection temperature of the thermistor (TH1, TH2) rises 30°C over the specified temperature during copying operation. • The detection temperature of the thermistor (TH1, TH2) rises 30°C over the specified temperature during copying operation. • The thermistor detects a rise in temperature of 40°C or more during standby. • The temperature has increased over 100°C or more within 1 sec after the thermistor (TH1, TH2) has detected 100°C.
E002	• Thermistor (TH1, TH2; displacement, poor contact, open circuit) • Fixing heater (H1; open circuit, crack) • Thermal fuse (FU1; malfunction) • Triac (faulty) • DC controller (faulty)	• The detection temperature of the main thermistor (TH1) does not reach 105°C 1 sec after it has reached 90°C. • The detection temperature of the main thermistor (TH1) does not reach 130°C 1 sec after it has reached 105°C. • The detection temperature of the main thermistor (TH1) does not reach 135°C 1 sec after it has reached 120°C. • The detection temperature of the main thermistor (TH1) does not reach 150°C 1 sec after it has reached 135°C.

Table 3-801-1

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Code	Cause	Description
E003	• Thermistor (TH1, TH2; displacement, poor contact, open circuit) • Fixing heater (H1; open circuit, crack) • Thermal fuse (FU1; malfunction) • Triac (faulty) • DC controller (faulty)	• The detection temperature of the main thermistor (TH1) is 150°C or less after it has reached 150°C. • The detection temperature of the sub thermistor (TH2) is 90°C or less after it has reached 90°C.
E004	• Triac (faulty) • Heater ON detection PCB (faulty)	The fixing heater is identified as being on when the fixing heater drive signal is off (HTRD=0). **Note:** The 100/115V model does not have a heater on detection PCB and does not detect E004.
E007	• Fixing film (displacement, tear) • Tension roller (displacement, malfunction) • Fixing film motor (M4; faulty) • Fixing film sensor (PS9; faulty)	The fixing film sensor output remains '1' or '0' for 1.35 sec or more. **Reference:** The fixing film takes about 1.3 sec to make a full rotation.
E010	• Main motor (M1; faulty) • DC controller (faulty)	The main motor revolution is not as specified (MLOCK=0) for 1 sec or more while the main motor drive signal is on (MMD=1).
E030	• Counter (open circuit) • DC controller (faulty)	Checks are made immediately before the counter turns on or off and when copying operation is started. Normal if drive signal = 0 at time the counter turns on; Normal if drive signal = 1 at time the counter turns off. **Note:** Checks are made only when the counter is installed.
E064	• Composite power supply (faulty) • DC controller (faulty)	The high voltage of the composite power supply is different from the setting.
E202 (keys on control panel disabled)	• Scanner cable (displacement, tear) • Scanner home position sensor (PS1; faulty) • Scanner motor (M2; faulty) • DC controller (faulty)	The scanner does not return to the home position within 5 sec when it is started. E002 may be checked in 'No. 108' of service mode.
E210	• Lens cable (displacement, tear) • Lens home position sensor (PS2; faulty) • Slide shutter (operation) • Blank shutter home position sensor (PS3; faulty) • Change solenoid (SL1; faulty) • Lens motor (M3; faulty) • DC controller (faulty)	• The lens home position sensor signal (LHP) is not generated within a specific period of time after the power switch has been turned on. • The lens home position signal (LHP) is generated longer than a specific period of time. • The blank shutter home position signal (BSHP) is not generated when the slide shutter is moving.

Table 3-801-2

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Code	Cause	Description
E220	• Scanning lamp (faulty) • Composite power supply (faulty) • DC controller (faulty)	• The lamp is identified as being on during standby. • The lamp is identified as being off during copying operation.
E240	• DC controller (faulty) • Composite power supply (faulty)	A communication error is detected between the CPU (Q301) on the DC controller and the CPU (Q512) on the composite power supply.
E261	• Power supply frequency (fluctuation) • Composite power supply (faulty)	The intervals of the zero cross signal is outside the tolerance.
E710	• DC controller (faulty)	The IPC (Q104) cannot be initialized at power-on.
E711	• DC controller (faulty)	An IPC communication error has been detected twice within 1 sec.
E712	• DC controller (faulty) • DF controller (faulty) • Connector (poor contact)	An error in communication with the DF cannot be cleared.
E717	• DC controller (faulty) • ASSIST controller (faulty) • Communication (with ASSIST)	• A communication with ASSIST has been successfully but failed in the middle. • An open circuit is detected on the line with ASSIST.

Table 3-801-3

Clearing an Error Code (back-up data)

When the self diagnosis mechanism has been activated, the copier may be reset by turning its power off and on. However, this does not work for E000, E001, E002, E003, E004, or E007; this arrangement is to prevent the user from causally resetting any of the errors, which could damage the film or the heater in side the fixing assembly.

If E000, E001, E002, E003, E004, or E007 is indicated, remove the cause and clear the back-up data as follows:

1) Open the front door, and insert the door switch actuator.
2) Press the power switch while holding down the service mode switch (SW302) on the DC controller with a hex key.
3) The power should go off in about 2 sec; turn on the power.

Caution:
Detection of E000, E001, E002, E003, or E004 automatically turns off the copier. To check the type of error in service mode, go through the above steps after disconnecting the fixing heater.

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Self Diagnosis (ADF)

Code	Cause	Description
E400	• data communication with copier (error)	The data communication is monitored at all times; the error is identified if the communication with the copier is absent for 5 sec or more.
E402	• belt motor (fails to rotate) • belt motor clock sensor (faulty)	The belt clock pulses within 200 msec are below the specified number.
E404	• delivery motor (fails to rotate) • delivery motor clock sensor (faulty)	The delivery motor clock pulses within 200 msec are below the specified number.
E411	• document detection (faulty) • registration sensor (faulty) • document edge sensor (faulty)	The output of the sensor is 2.3 V or more in the absence of paper.

Note:
To reset the copier after activation of the self diagnosis mechanism, switch the copier off and then on. You can still continue to make copies even when the ADF is out of order; simply open the ADF, and set the documents on the copyboard glass.

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Self Diagnosis (sorter)

Code	Cause	Description
E500	The CPU or the communications IC on the sorter controller is not operating normally.	An error is detected in the communication between the sorter and the copier.
E510	The feeder motor fails to rotate.	The clock signal from the motor is off for 250 msec or more.
E530	The stapler guide bar swing motor fails to rotate.	The home position sensor does not turn off after generation of 2560 pulses of the motor drive signal.
E531	The stapler unit swing motor fails to rotate.	• The stapler unit swing sensor does not turn off within 500 msec after generation of the motor drive signal. • The sensor does not turn on again within 1000 msec after the stapler unit swing sensor has turned off.
E540	The bin shift motor fails to rotate.	• The reed cam home position sensor does not turn off within 2000 msec after generation of the motor drive signal. • The reed cam home position sensor does not turn on once again within 2000 msec after it has turned off.
E541	• Bin motor (faulty) • Reed cam drive gear (faulty mounting)	The reed cam position sensor does not turn on within 1.0 sec after it has turned off.

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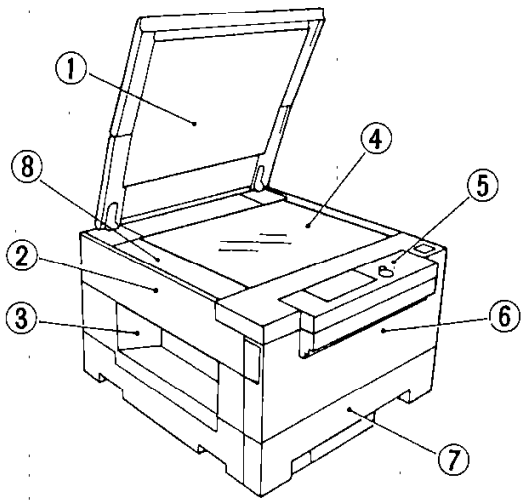
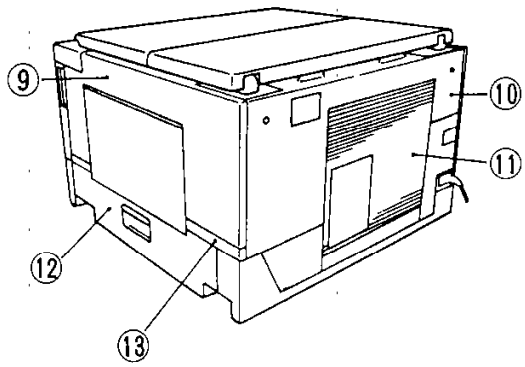
I. EXTERNALS

A. External Covers



① Copyboard cover
② Left cover
③ Delivery cover
④ Copyboard
⑤ Control panel
⑥ Front door
⑦ Cassette
⑧ Upper left cover

Figure 4-101



⑨ Right cover
⑩ Upper rear cover
⑪ Rear cover
⑫ Lower right cover
⑬ Lower right back

Figure 4-102 cover

Note:
Detach the covers when cleaning, inspecting, or repairing the inside of the copier as necessary.
Covers that may be detached merely by removing their respective mounting screws are omitted from the discussion.

Caution:
When attaching the rear cover, be sure that the harness is housed inside the upper rear cover so that its portion shown in the diagram will not spring out the cover or the harness will not come into contact with the connector plate.

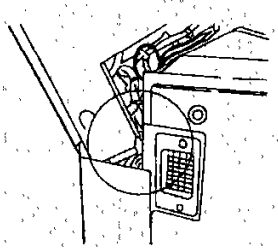


Figure 4-103

When attaching the copyboard glass, make sure that it is firmly in contact with the vertical size plate without a gap to prevent intrusion of foreign matter.

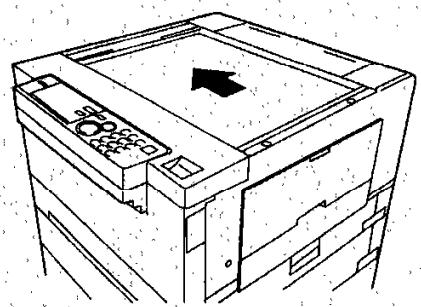


Figure 4-104

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B. Control Panel

1. Detaching the Control Panel

1) Detach the copyboard glass.
2) Detach the upper left cover.
3) Open the front door.
4) Pull the copier's open/close lever to open the copier.
5) Detach the upper rear cover.
6) Detach the right cover.
7) Detach the left cover.
8) Remove the five screws ①, and detach the inside cover ②.

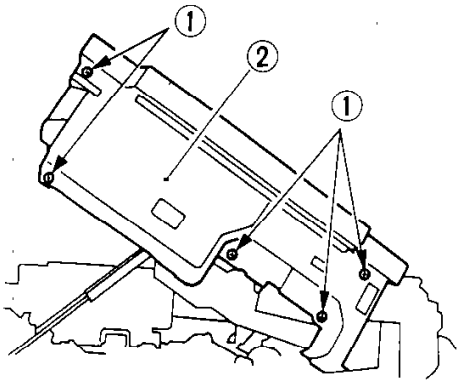

Figure 4-105

9) Disconnect the two connectors ④ (J309, J310) on the DC controller PCB; then, detach the control panel ⑤.

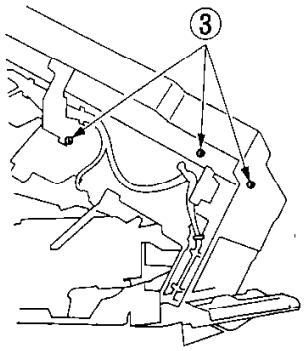

Figure 4-106

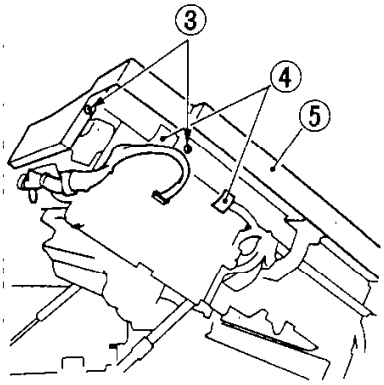

Figure 4-107

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C. Fans

1. Detaching the Exhaust Fan

1) Open the front door.
2) Pull the copier's open/close lever to open the copier.
3) Detach the DC controller PCB. (See "1. Detaching the DC Controller PCB" on p. 4-45.)
4) Remove the screw ① at the copier's rear, and remove the two screws ② at the front.

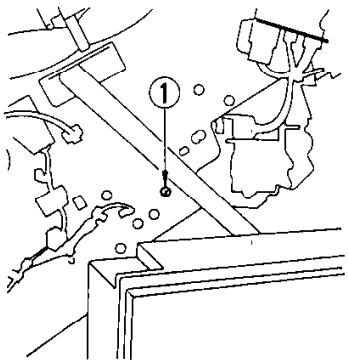

Figure 4-108

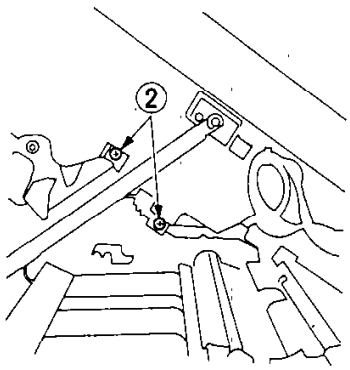

Figure 4-109

5) Pull out the exhaust fan assembly ③ toward the front while supporting it.

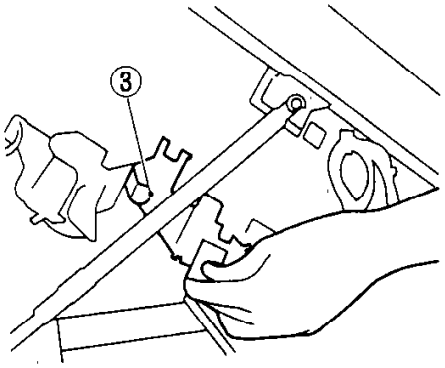

Figure 4-110

6) Remove the four screws ④, and detach the exhaust fan ⑤.

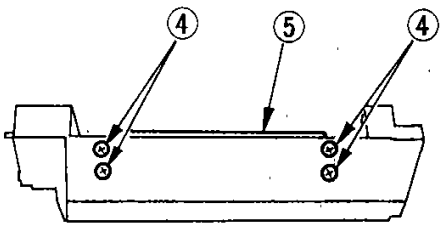

Figure 4-111

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II. DRIVE SYSTEM

A. Scanner Drive Assembly

1. Detaching the Scanner Drive Motor

1) Remove the upper rear cover.
2) Disconnect the connector ① of the motor, and remove the two screws ②; then, detach the scanner drive motor ③.

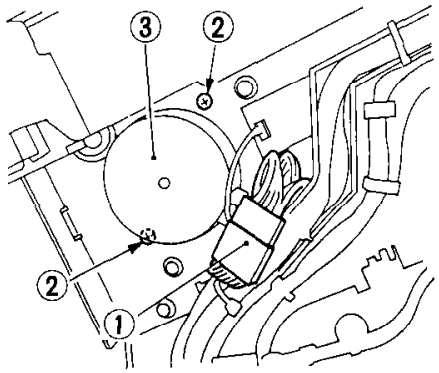

Figure 4-201

2. Detaching the Scanner Cable

1) Detach the copyboard cover, right cover, left cover, upper rear cover, and lower rear cover.
2) Detach the copyboard glass.
3) Detach the control panel.
4) Detach the copyboard cover support ①.

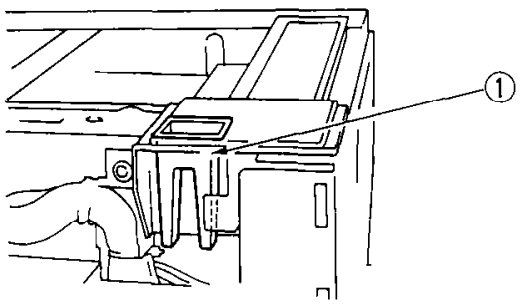

Figure 4-202

5) Remove the six screws ②, and detach the upper left stay ③.

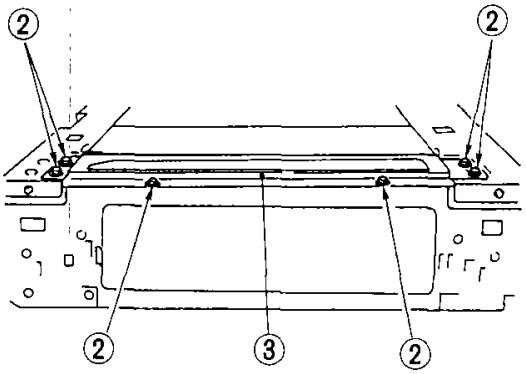

Figure 4-203

6) Fix the cable in place using a pully clip (FY9-3010)

Figure 4-204

7) Loosen the two screws ④ to loosen the cable tension (both front and right).

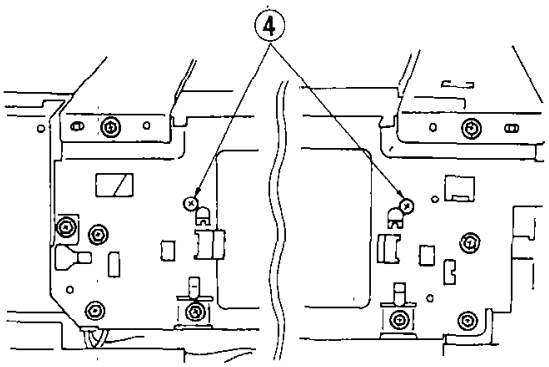

Figure 4-205

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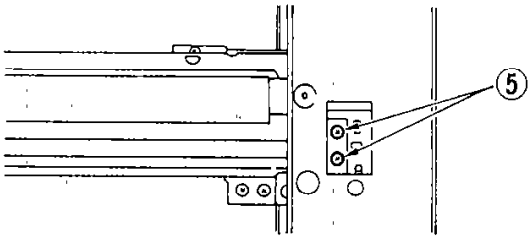
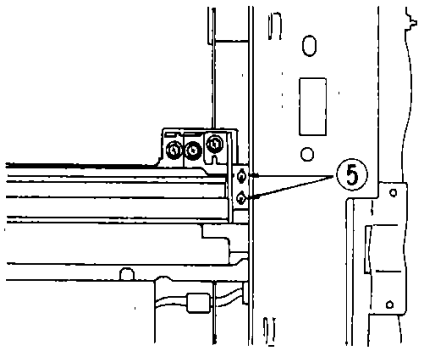
8) Move the No. 1 mirror mount to the front to align the long hole in the front side plate and the cable fixing screw ⑤.
Then, detach the cable fixing screw ⑤ to separate the No. 1 mirror mount and the scanner cable (both front and rear).



(front)



(rear)

Figure 4-206

9) Remove the pully clip, and detach the scanner cable (both front and rear).

3. Assembling the Mirror Position Tool

1) Remove the screw found in position B.

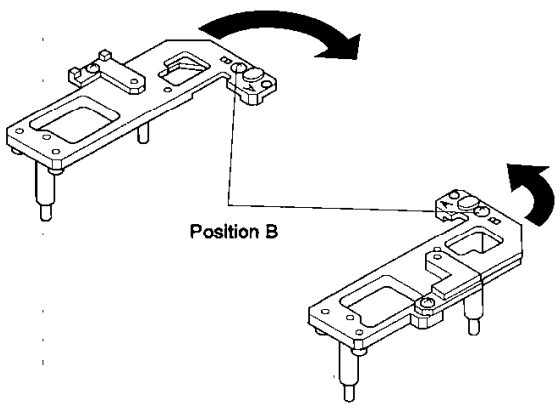


Figure 4-207

2) Fit the screw removed in step 1) in position A, and tighten it slightly.
3) Extend the arm accommodated by the main frame unit it butts against the stopper as in Figure 4-208.
4) Tighten the screw.

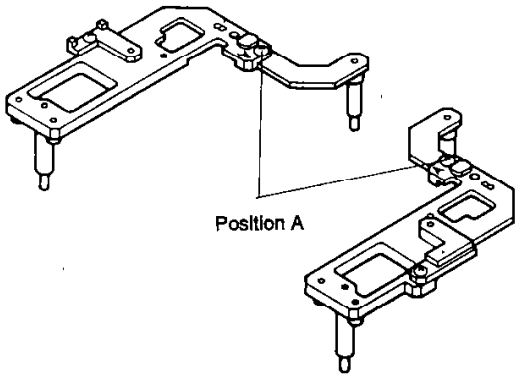


Figure 4-208

4. Routing the Scanner Cable

Keep the mirror positioning tool (FY9-3009) and pulley clip (FY9-3010) handy when routing the scanner cable.

Further, if you are using the mirror positioning tool, assemble it in advance by referring to "3. Assembling the Mirror Positioning Tool."

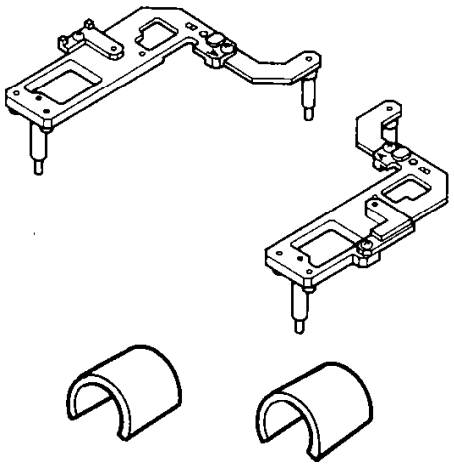


Figure 4-209

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1) Put the steel ball into the hole of the pulley, and wind the cable four times toward the flange and then nine times in the opposite direction; thereafter, fix it in place using the pulley clip.
2) As in ②, set the mirror positioning tool between the No. 1 and No. 2 mirror mounts.
3) Loosen the screw on the mirror pulley mount as in ③; then, temporarily fix the cable in position on the left stay.
4) Route the cable as shown in the illustration; engage ⑤ on the hook on the side plate, and engage the ⑧ on the tension plate on the lens mount.
5) Tighten the screw loosened in ③, and fix the cable to the left stay.
6) Loosen the screws on the drive pulley once so that the tension of the scanner cable is even as in ⑩; then, tighten it once again.
7) Fix the No. 1 mirror mount and the scanner cable fixing as in ⑪.
8) Make adjustments so that the length of the cable is 34 ±1 mm as in ⑨ using a ruler.

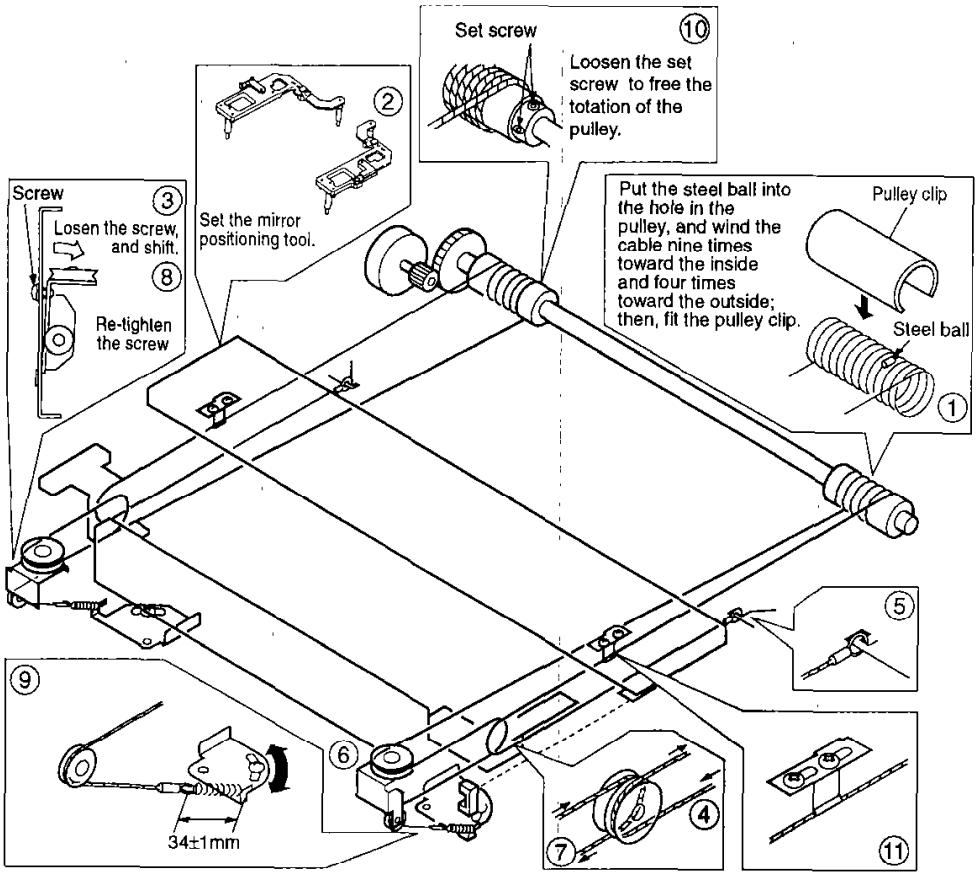

Figure 4-210

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Caution:
When attaching the wire spring, pay attention to the orientation of the spring; see the diagrams below. If not attached correctly, its hook tip could interfere with the cable.

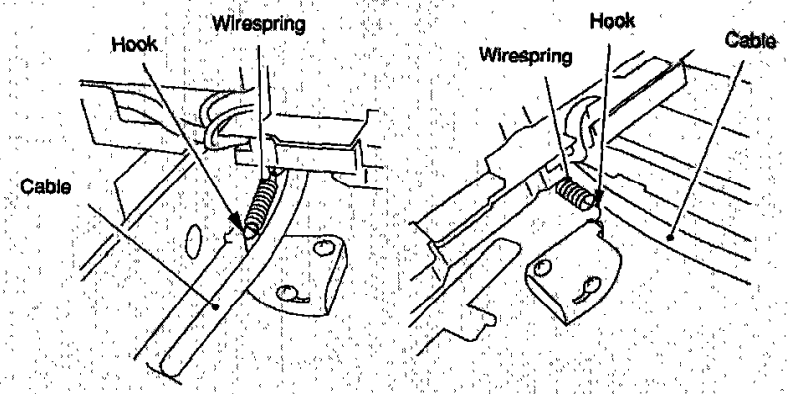

Figure 4-211

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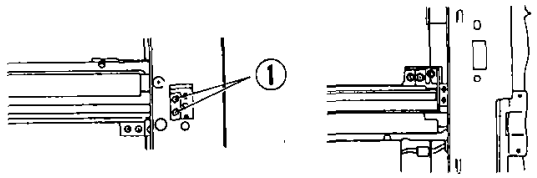
5. Adjusting the Position of the Mirrors (optical length of No. 1, 2, and 3 mirrors)

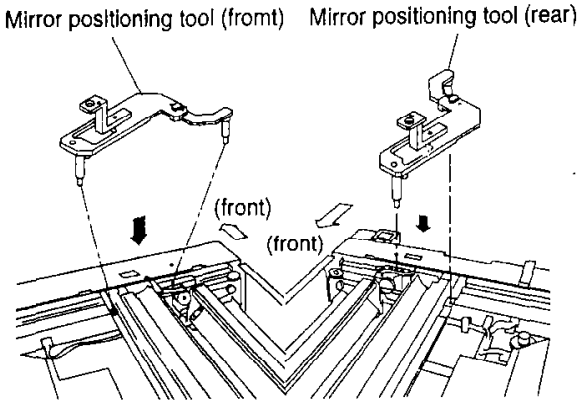
1) Keep the mirror positioning tool handy. (See "3. Assembling the Mirror Positioning Tool.")
2) Move the No. 1 mirror mount toward the front, and align the angular hole in the front side plate and the cable fixing screw ①.



(front) (rear)

Figure 4-212

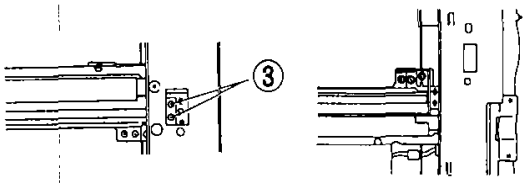
3) Loosen the set screw on the pulley.
4) Set the mirror positioning tool ② to the No. 1 mirror mount and the No. 2 mirror mount (both front and rear).



(front) (front)

Figure 4-213

5) Attach the scanner cable fixing to the No. 1 mirror mount using two screws ③ (both front and rear).
6) Tighten the screw on the pulley.
7) Detach the tool (FY9-3009).



(front) (rear)

Figure 4-214

6. Cleaning the Scanner No. 6 Mirror

1) Open the front cover.
2) Open the copier by operating the copier open/close lever.
3) Detach the dust-proofing glass ① and dust-proof mirror cover ②.

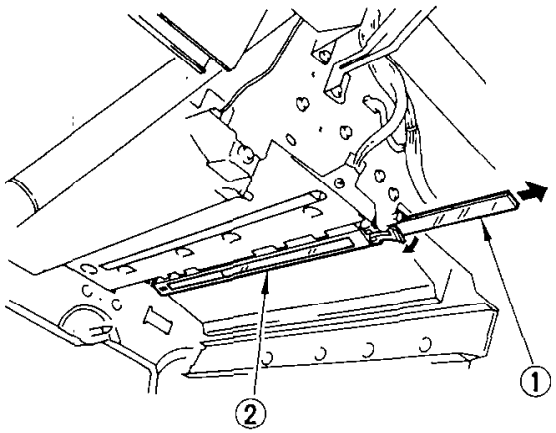


Figure 4-215

4) Clean the No. 6 mirror using a blower brush or lint-free paper moistened with alcohol.

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B. Lens Drive Assembly

1. Detaching the Lens Drive Motor

1) Detach the upper rear cover and right glass rerainer.
2) Detach the copyboard glass.
3) Move the No. 1 mirror assembly ① to the left.
4) Remove the two screws ②, and detach the lens cover ③.

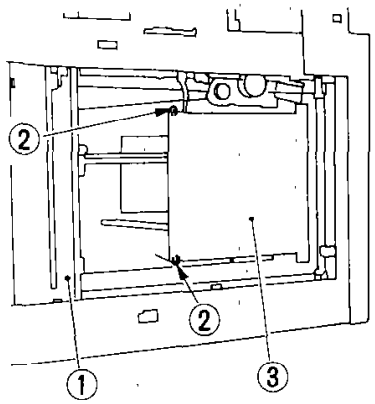

Figure 4-216

5) Loosen the tension on the spring ④, and detach the cable ⑤.

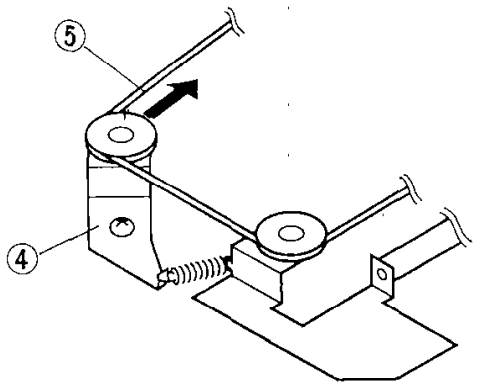

Figure 4-217

6) Disconnect the two connectors ⑥ from the copier's rear.

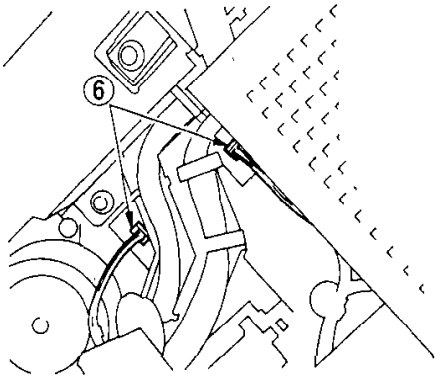

Figure 4-218

7) Remove the two screws ⑦, and detach the lens drive unit ⑧.

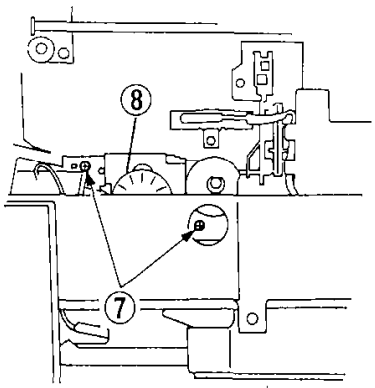

Figure 4-219

8) Remove the two screws, and disconnect the connector ⑩; then, detach the lens motor ⑪.

Caution:
Disconnect the connector ⑩ first before removing the screw ⑨; otherwise, the harness and driver will come into contact with each other.

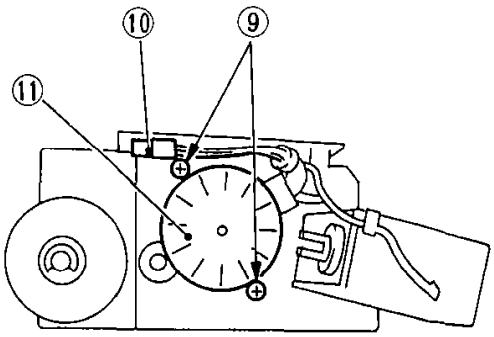

Figure 4-220

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2. Routing the Lens Cable

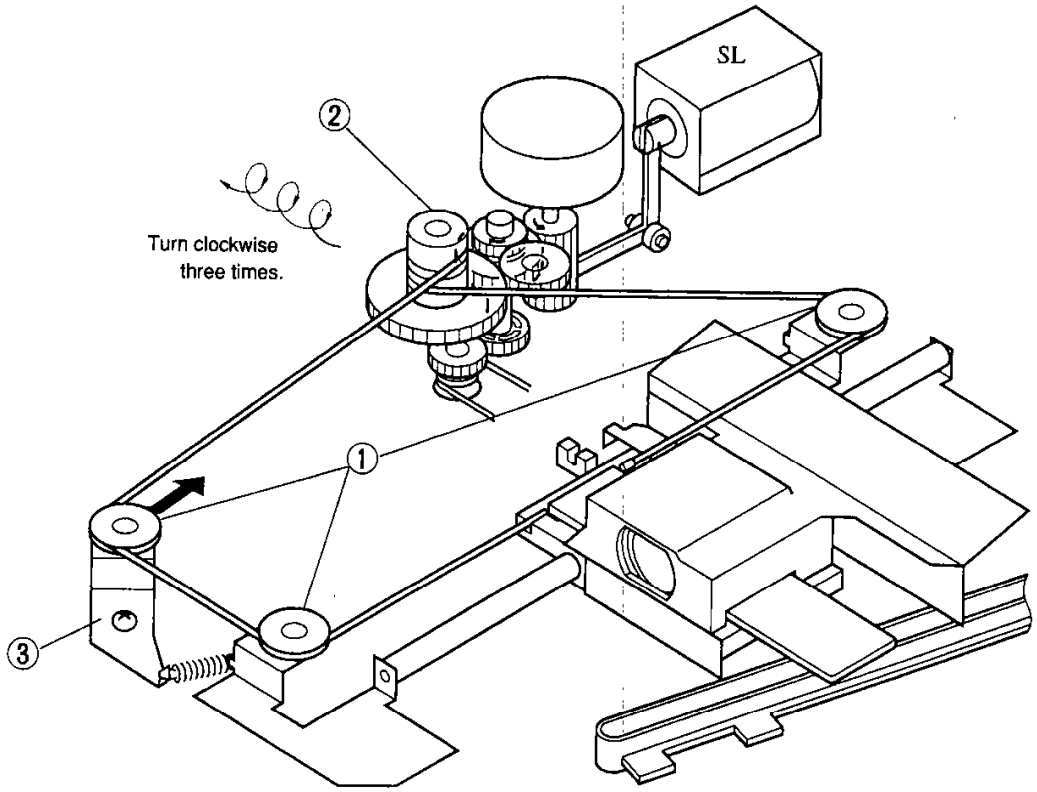

Figure 4-221 Lens Drive Assembly

1) Attach the lens cable to each pulley ① while winding it around the lens pulley ② as indicated in Figure 4-221.
2) Move the tension pulley ③ to hook the cable.

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3. Adjusting the Position of the Change Solenoid

Make adjustments by loosening the two screws ⑤ so that the gear ④ is moved fully in the direction of b by the arm ③ when the steel core ① of the solenoid is fully pushed in the direction of B by a finger, i.e., when the E-ring ② comes into contact with the solenoid.

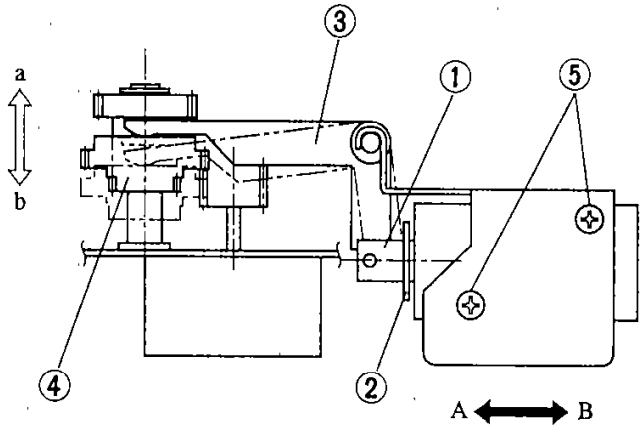

Figure 4-222

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C. Main Motor/Main Drive Assembly

1. Detaching the Main Motor Unit

1) Detach the rear cover.
2) Disconnect the two connectors ①, and remove the three screws ②; then, detach the main motor unit ③.

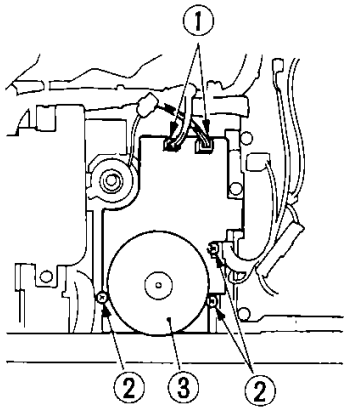

Figure 4-223

2. Detaching the Main Drive Assembly

1) Open the front door.
2) Pull out the drum cartridge.
3) Detach the multifeeder unit.
4) Detach the rear cover.
5) Detach the main motor.
6) Remove the clip ring ①, and disconnect the connector ②; then, detach the registration clutch ③.

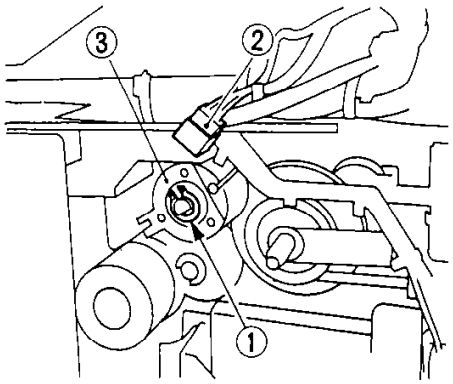

Figure 4-224

7) Remove the screw ④, and detach the composite power supply support plate ⑤.

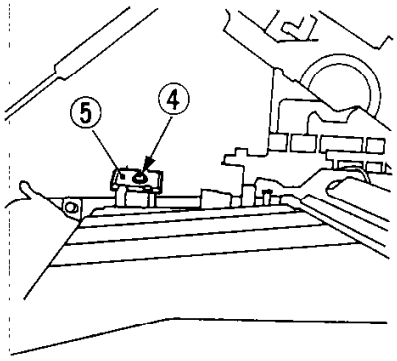

Figure 4-225

8) Detach the belt from the belt tensioner ⑥ of the fixing drive assembly.

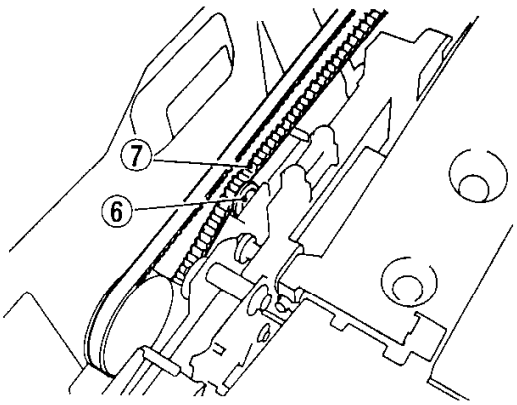

Figure 4-226

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9) Turn the pulley ⑧ clockwise, and detach the belt ⑨.

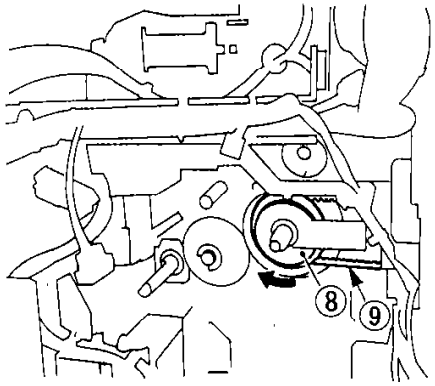

Figure 4-227

10) Remove the E-ring ⑩ and clip ring ⑪; then, detach the bushing ⑫. In this condition, detach the gear and pulley ⑬ from the main drive assembly.

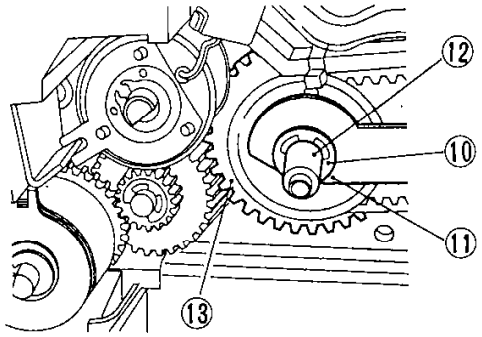

Figure 4-228

3. Routing the Drive Belt

Route the drive belt attaching them to the pulley and the tensioner as shown in Figure 4-229.

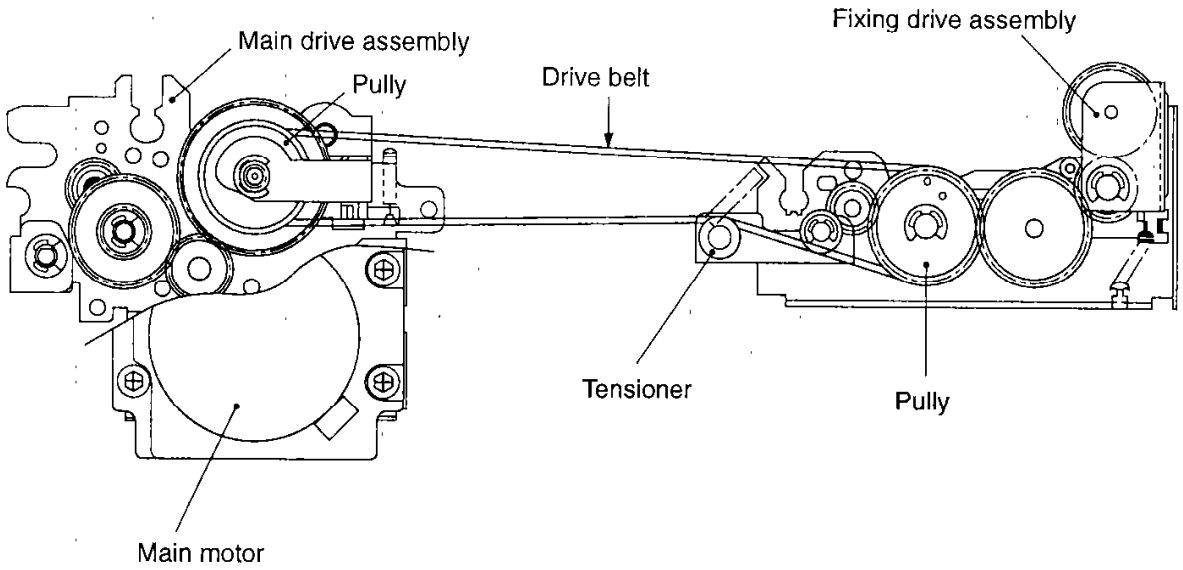

Figure 4-229

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III. PICK-UP/FEEDING SYSTEM

A. Pick-Up Assembly

1. Detaching the Pick-Up Roller Unit

1) Pull out the cassette.
2) Remove the stop ring ① (plastic) from the front of the pick-up roller unit.

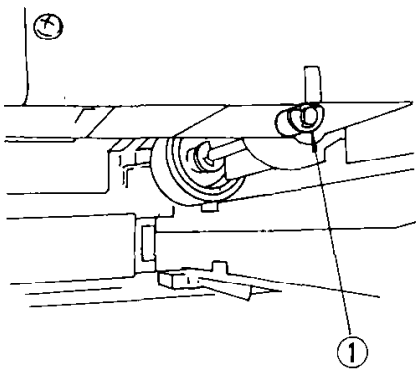

Figure 4-301

3) Open the lower right cover.
4) Remove the two screws ②, and pull out the paper guide plate toward the front.

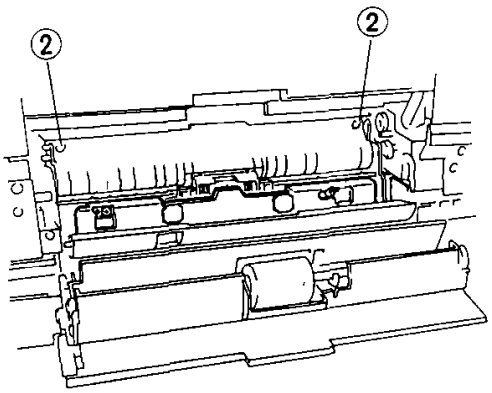

Figure 4-302

Note:
You will have sufficient access to the pick-up roller and the bushing at the rear in this condition.

5) Push in the pick-up roller ③ from the direction of step 4) toward the rear, and remove the bushing ④ while lowering it to the lower left.

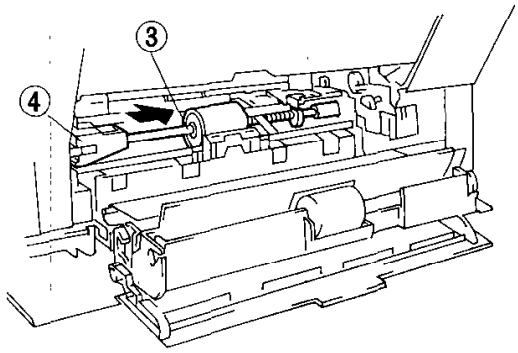

Figure 4-303

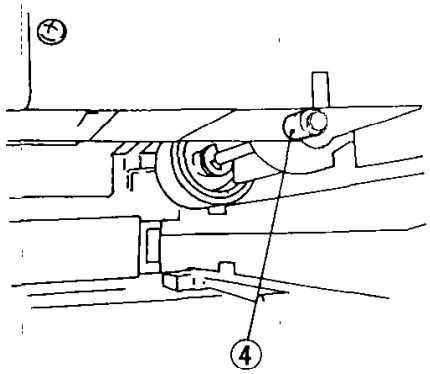

Figure 4-304

6) Push in the bushing ⑤ at the rear toward the front, and lower the spring pressure to remove the pick-up unit toward the left of the copier.

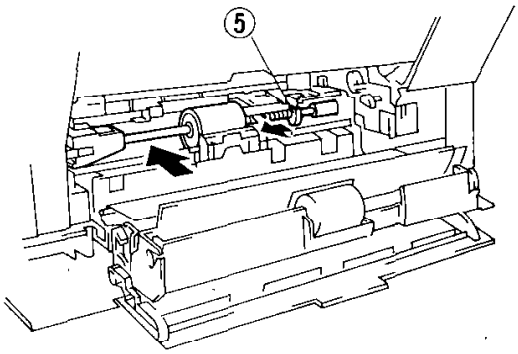

Figure 4-305

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Note:
When removing the pick-up roller Assembly, separate the right side black bushing from the key.

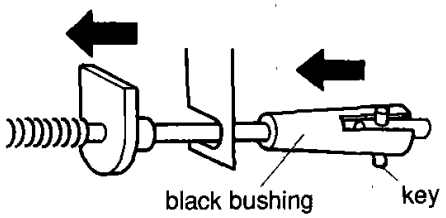

Figure 4-306

Caution:
Check that the paper registration sensor (PS 6) is properly seated after this procedure is completed.

2. Detaching the Pick-Up Roller

1) Detach the pick-up roller unit. (See "1. Detaching the Pick-Up Roller Unit.")
2) Remove the E-ring ① and the E-ring ②; then, pull out the pick-up roller ③ together with the collar.

Caution:
Take care not to drop the pin found toward the rear.

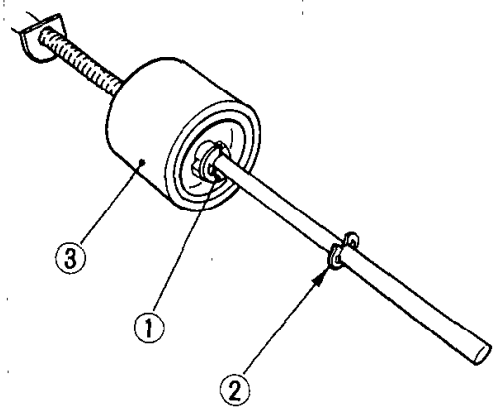

Figure 4-307

3. Points to Note When Attaching the Pick-Up Roller

When attaching the pick-up roller ①, attach it so that the side ② shown in Figure 4-308 is toward the rear.

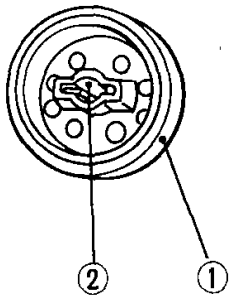

Figure 4-308

4. Detaching the Pick-Up Clutch

1) Detach the main motor unit. (See "1. Detaching the Main Motor Unit" on p. 4-12.)
2) Remove the two screws ①, and detach the connector mount ②.

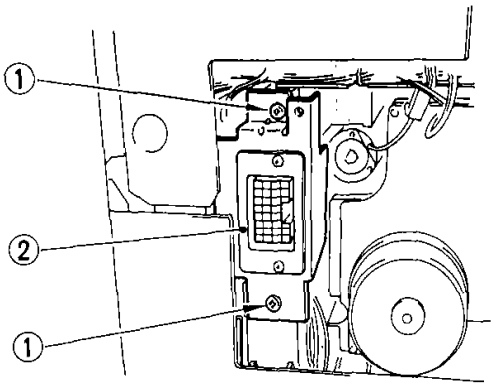

Figure 4-309

3) Disconnect the connector ③, and remove the clip ring ④; then, detach the pick-up clutch ⑤.

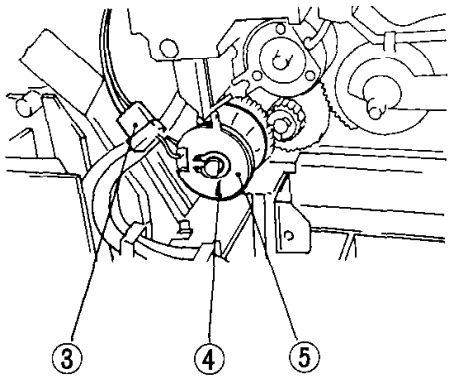

Figure 4-310

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5. Detaching the Separation Pad

1) Open the right door.
2) Remove the two screws ①, and detach the separation cover ②.

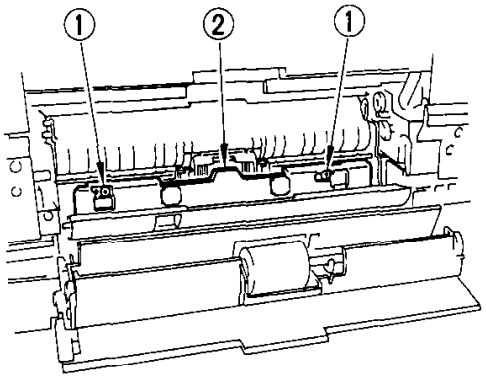

Figure 4-311

3) Remove the two screws ③, and detach the separation pad unit ④.

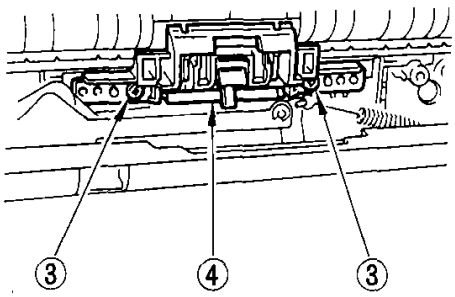

Figure 4-312

6. Adjusting the Left/Right Registration

Make adjustments so that the position of the image is as shown in Figure 4-314 when the Test Sheet is copied in Direct.

a. Pick-Up from the Cassette

Turn the screw ① shown in Figure 4-313 to adjust the position of the cassette hook plate.

standard: 0 ±1.5 mm

clockwise turn: moves the paper in the direction of – shown in Figure 4-314

counterclockwise turn: moves the paper in the direction of + shown in Figure 4-314

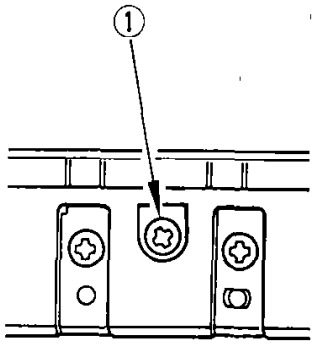

Figure 4-313

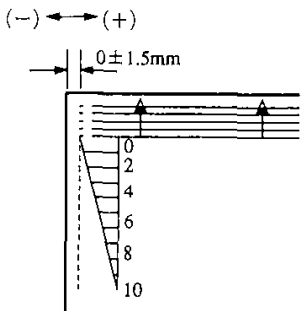

Figure 4-314

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B. Multifeeder Assembly

1. Detaching the Multifeeder Assembly

1) Open the right door.
2) Remove the two screws ①, and shift the multifeeder assembly ② toward the front to detach.

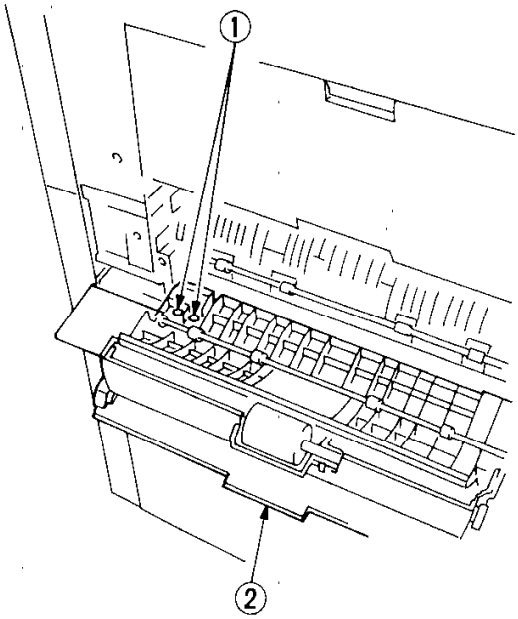

Figure 4-315

2. Detaching the Multifeeder Pick-Up Roller Unit

1) Open the right door.
2) Remove the E-ring ①, and pull out the bushing ②.
3) Remove the two screws ③.

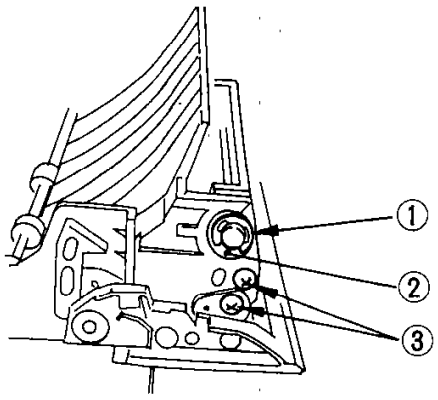

Figure 4-316

4) Remove the screw ④, and detach the roller cover ⑤.

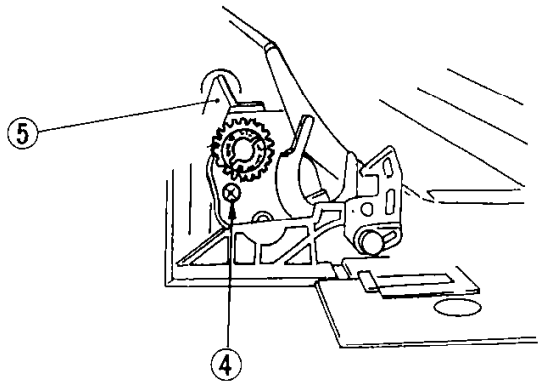

Figure 4-317

5) Shift the multifeeder pick-up roller unit ⑥ toward the rear to detach.

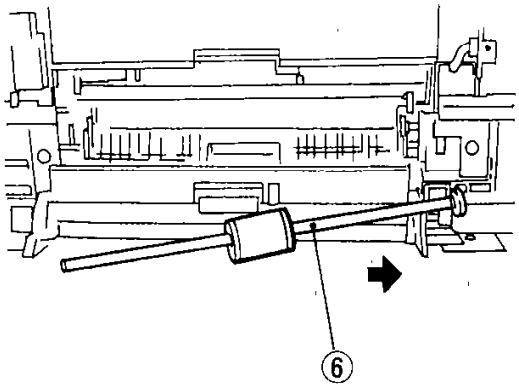

Figure 4-318

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3. Detaching the Multifeeder Pick-Up Roller

1) Detach the multifeeder pick-up roller unit. (See "2. Detaching the Multifeeder Pick-Up Roller Unit on p. 4-17.")
2) Remove the stop ring ① (plastic), and pull out the pick-up roller ② together with the collar.

Caution:
Take care not to drop the pin found at the rear.

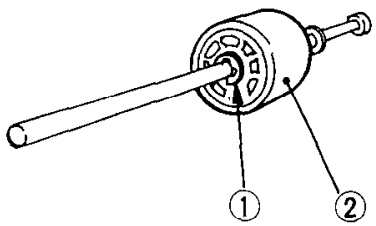

Figure 4-319

4. Points to Keep Note When Attaching the Multifeeder Pick-Up Roller

When attaching the multifeeder pick-up roller ①, make sure that the side with a cross ② on the collar is toward the rear.

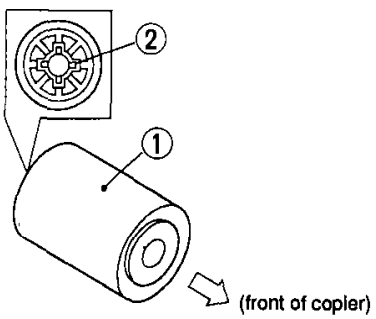

Figure 4-320

5. Detaching the Separation Pad

1) Open the upper right door.
2) Remove the two screws ①, and detach the separation pad ②.

Caution:
At this time, take care not to lose the spring on the separation pad assembly.

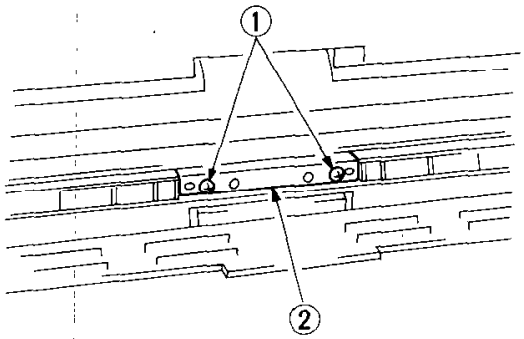

Figure 4-321

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6. Detaching the Multifeeder Drive Unit

1) Detach the multifeeder assembly. (See "1. Detaching the Multifeeder Assembly on p. 4-17.")
2) Detach the connector mount.
3) Remove the screw ①.

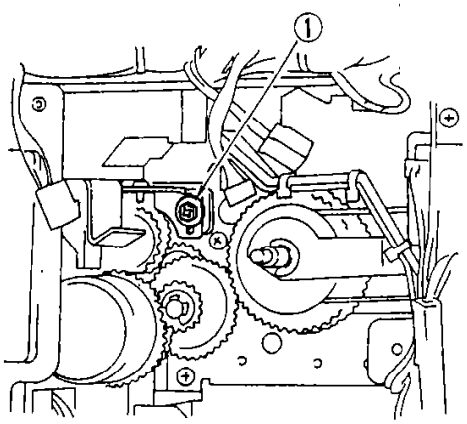

Figure 4-322

4) Remove the screw ②, and disconnect the connector ③; then, detach the multifeeder drive unit ④.

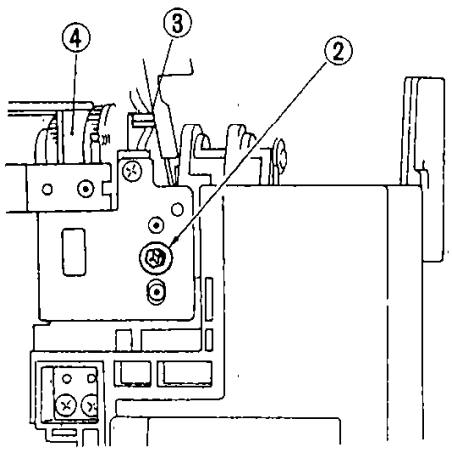

Figure 4-323

7. Detaching the Multifeeder Clutch

1) Detach the multifeeder drive unit. (See "6. Multifeeder drive Unit on p. 4-19.")
2) Remove the E-rings ① ② and screws ③ ④ ⑤; then, detach the support mount.
3) Detach the multifeeder pick-up clutch ⑥.

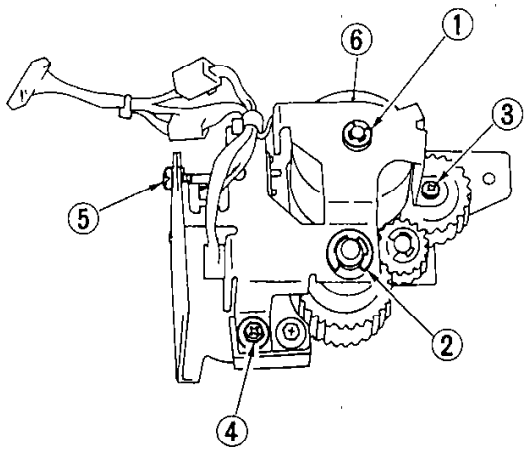

Figure 4-324

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8. Positioning the Multifeeder Assembly (paper guide plate cam)

Temporarily fix the screw equipped with a hex nut on the spring clutch assembly, and rotate the control ring. Make adjustments so that the hole in the cam and the hole in the multifeeder drive unit match as shown in Figure 4-325 when the claw is engaged with the solenoid plate; then, fix in position.

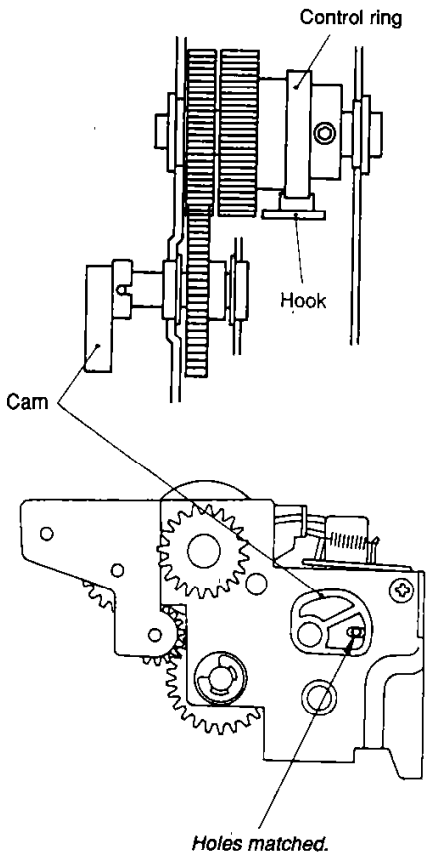

Figure 4-325

9. Adjusting the Left/Right Registration

If the right/left registration is not correct when copies are made using the multifeeder, loosen the screw ①, and adjust the position of the tray.

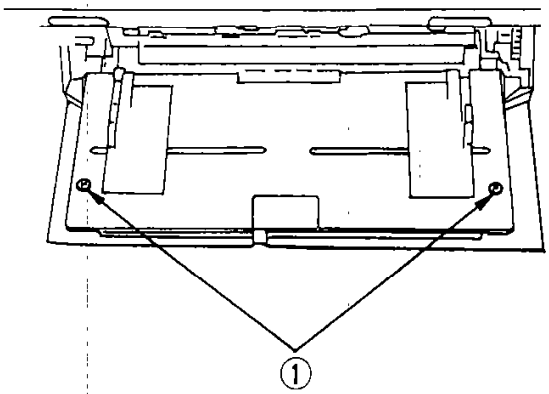

Figure 4-326

10. Points to Note When Attaching the Multifeeder Assembly Rack Plate

Attach the rack plate of the multifeeder to the pulley while both its right and left are fully open.

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C. Registration Roller Assembly

1. Detaching the Registration Clutch

1) Detach the connector cover or the lattice connector
2) Remove the clip ring ①, and disconnect the connector ②; then, detach the registration clutch ③.

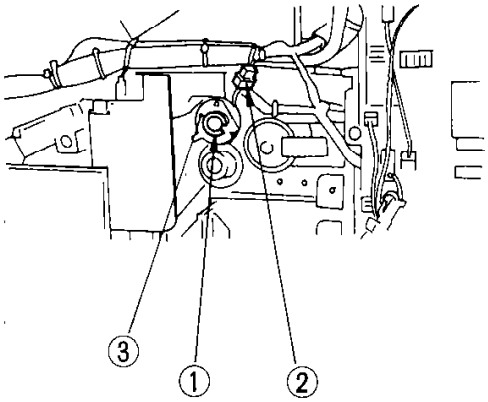

Figure 4-327

2. Detaching the Upper Registration Roller

1) Detach the registration clutch. (See "1. Detaching the Registration Clutch.")
2) Remove the spring ① (front) and spring ② (rear).

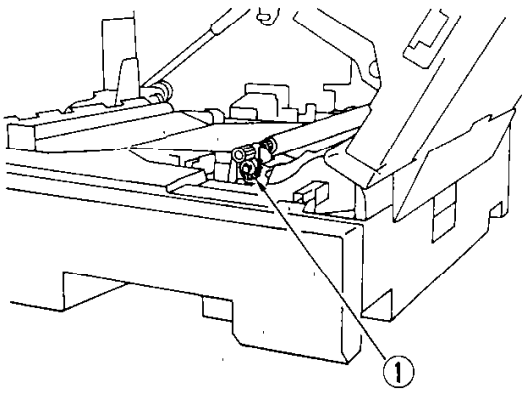

Figure 4-328

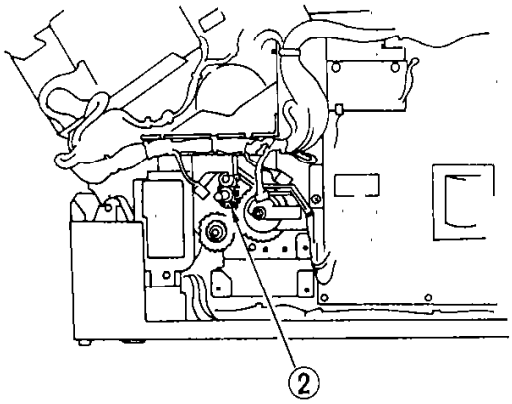

Figure 4-329

Caution:
Take care not to misplace the springs (front, rear).

3) Lift the upper registration roller ③ to detach.

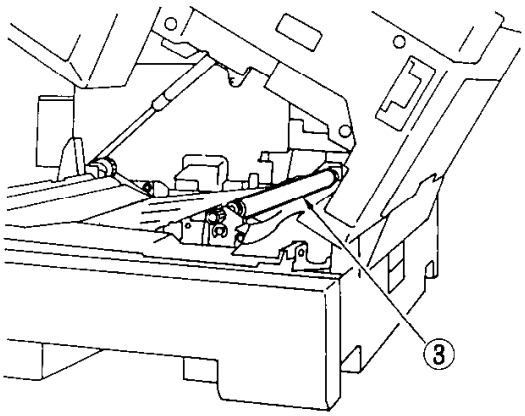

Figure 4-330

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3. Detaching the Lower Registration Roller

1) Detach the upper registration roller. (See "2. Detaching the Upper Registration Roller on p. 4-21.")
2) Open the lower right door, and remove the two screws ① to shift the pick-up guide ② toward the right side of the copier.

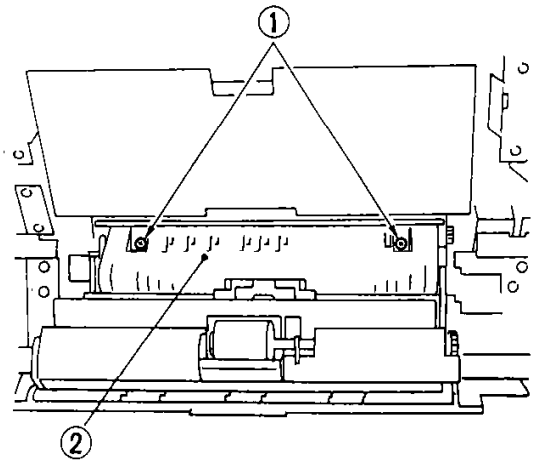

Figure 4-331

3) Remove the E-ring ③ (front), and shift the bushing ④.
4) Detach the registration roller ⑤.

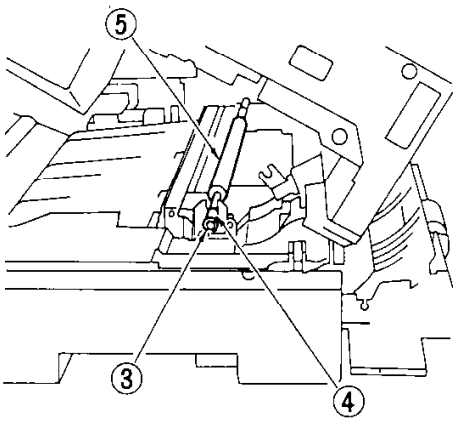

Figure 4-332

D. Feeding Assembly

Be sure to detach the cartridge before detaching the feeding assembly.

1. Detaching the Feeding Belt

1) Detach the lower fixing unit. (See "8. Detaching the Lower Fixing Unit" on p. 4-43.)
2) Remove the three screws ①, and shift the feeding retention plate ②.

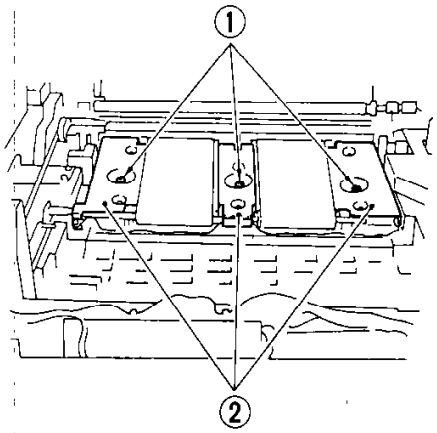

Figure 4-333

3) Disconnect the connector ③, and shift the feeding retention plate ②.

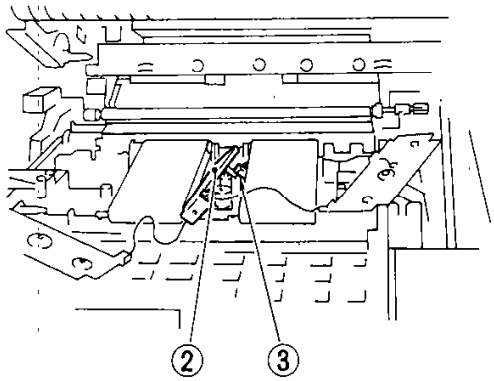

Figure 4-334

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4) Detach the feeding spacer ④ by pulling it toward the fixing assembly.

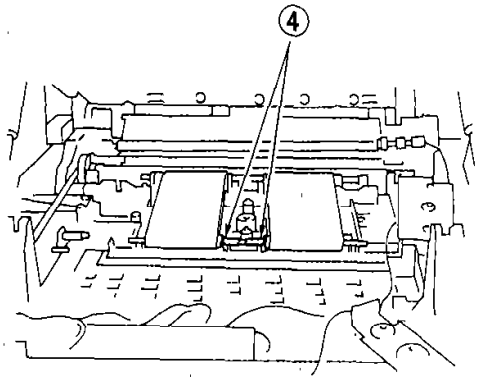

Figure 4-335

5) Detach the static eliminator.
6) Detach the feeding spacer ⑤ from the hook (arrow).

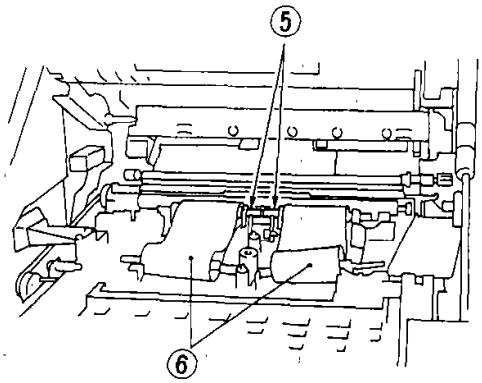

Figure 4-336

Caution:
Take care not to touch the transfer roller. Do not damage the area where the feeding spacers are in contact.

E. Delivery Assembly

1. Detaching the Delivery Roller

1) Open the copier's top body.
2) Remove the E-ring ①.
3) Shift the bushing ② (rear) and bushing ③ (front); then, detach the delivery roller ④.

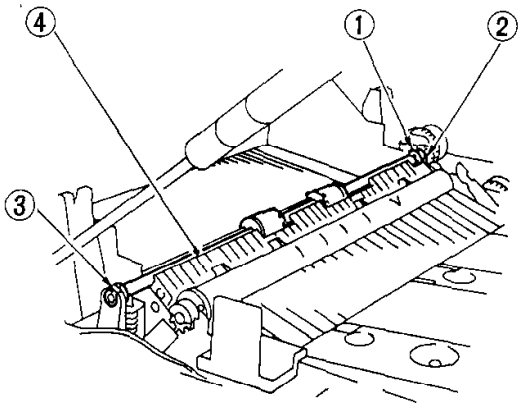

Figure 4-337

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F. Cassette Unit

1. Detaching the Copier from the Cassette Unit

1) Disconnect the copier's power plug.
2) Disconnect the connector ① of the cassette unit.

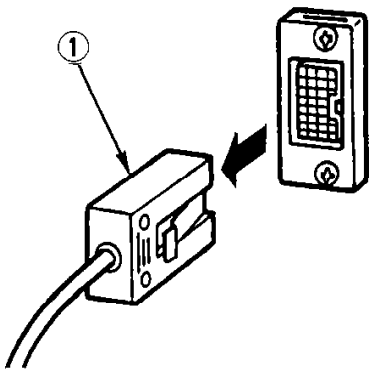

Figure 4-338

3) Hold the copier's grips, and detach the copier from the cassette unit.

2. Detaching/Attaching the Pick-Up Roller

See "2. Detaching the Pick-Up Roller" and "3. Points to Note When Attaching the Pick-Up Roller."

3. Detaching the Pick-Up Drive Unit

1) Detach the rear cover and right cover.
2) Remove the screw ①.

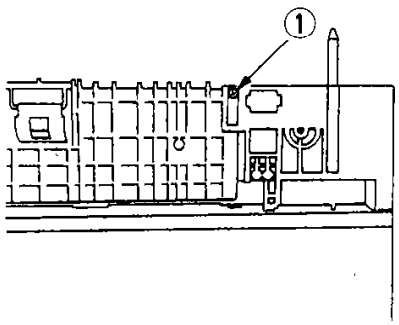

Figure 4-339

3) Remove the screw ②, and detach the harness guide ③.

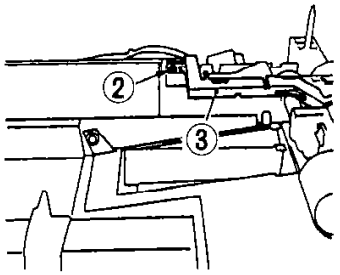

Figure 4-340

4) Remove the four screws ④, and disconnect the two connectors ⑤; then, detach the pick-up drive unit ⑥.

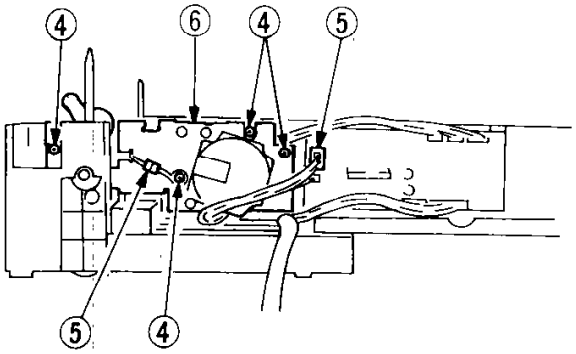

Figure 4-341

4. Detaching the Cassette Motor

1) Detach the rear cover.
2) Remove the two screws ①, and disconnect the connector ② (J114); then, detach the motor ③.

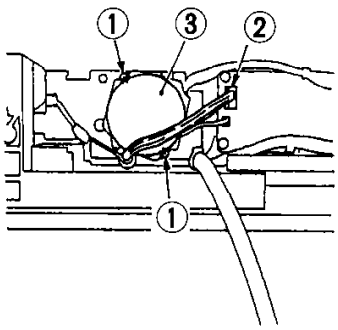

Figure 4-342

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5. Detaching the Pick-Up Clutch

1) Detach the pick-up drive unit. (See "3. Detaching the Pick-Up Drive Unit.")
2) Detach the cassette motor. (See "4. Detaching the Cassette Motor.")
3) Remove the three screws ①, and detach the bushing ② and side plate ③; then, detach the pick-up clutch ④.

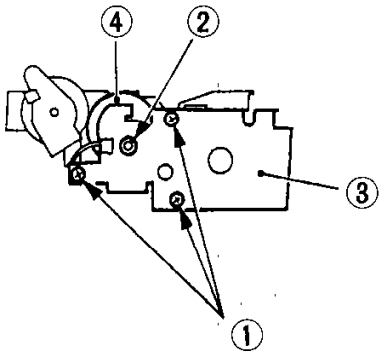

Figure 4-343

6. Detaching the Cassette Driver PCB

1) Detach the rear cover.
2) Disconnect all connectors from the cassette driver PCB ①.
3) Remove the three screws ②, and detach the driver PCB ①.

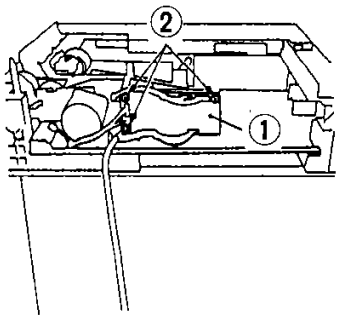

Figure 4-344

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IV. EXPOSURE SYSTEM

A. Illumination Assembly

1. Detaching the Scanning Lamp/ Fluorescent Lamp Heater

1) Disconnect the power plug.
2) Detach the copyboard glass.
3) Detach the upper rear cover.
4) Move the scanner unit near the center.
5) Remove the two screws ①, and detach the light-blocking plate ②.

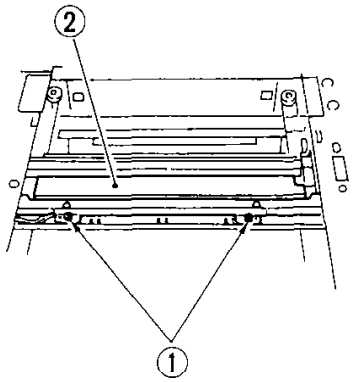

Figure 4-401

6) Disconnect the connectors ③, ④.

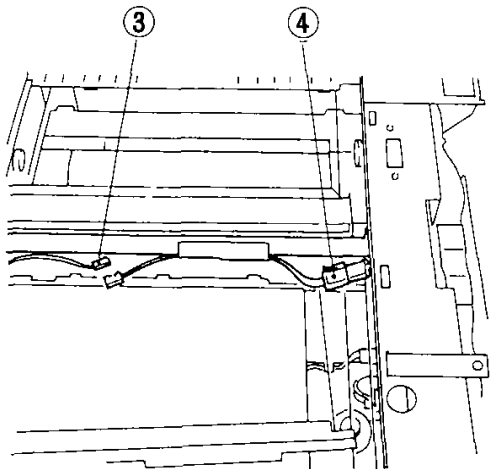

Figure 4-402

7) Remove the screw ⑤, and disconnect the connector ⑥.
8) Pull the fluorescent lamp ⑦ slowly toward the front to detach.

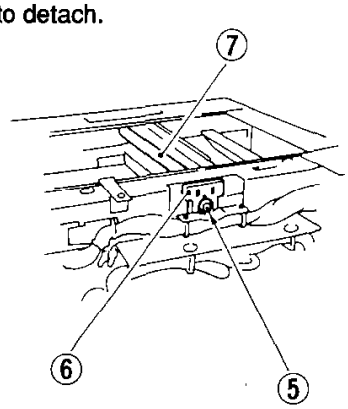

Figure 4-403

Caution:
Do not touch the fluorescent lamp. (Use lint-free paper.)

9) Detach the fluorescent lamp heater ⑧ from the fluorescent lamp.

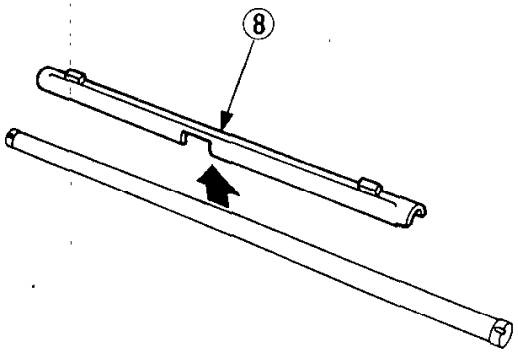

Figure 4-404

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2. Points to Note When Attaching the Fluorescent Lamp Heater/Scanning Lamp

- Attach the heater to the lamp as follows:

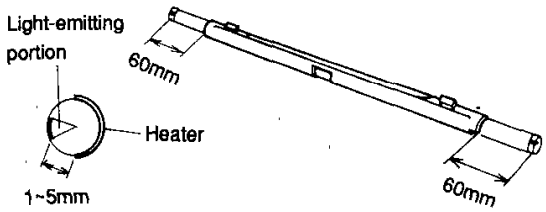

Figure 4-405

Caution:
Do not touch the fluorescent lamp. (Use lint-free paper.)
Do not block the light-emitting portion by the fluorescent lamp heater.

Attach the scanning lamp so that its light-emitting portion (open side) is to the left when viewed from the front of the copier as shown in Figure 4-406.

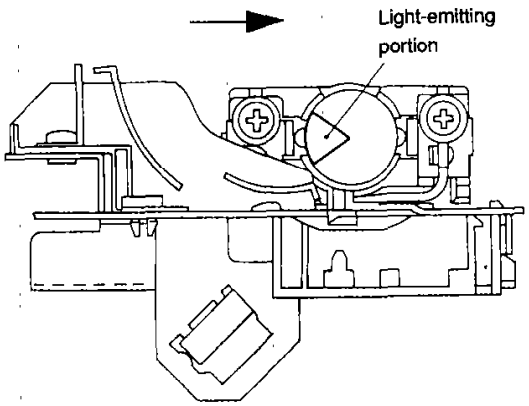

Figure 4-406 (front view)

Caution:
Do not touch the fluorescent lamp. (USe rint-free paper)
Be sure to adjust the gain and AE whenever you have replaced the fluorescent lamp. (See p. 3-84.)

- Make sure that the cut-off of the fluorescent heater is correctly oriented in relation to the intensity adjustment sensor.

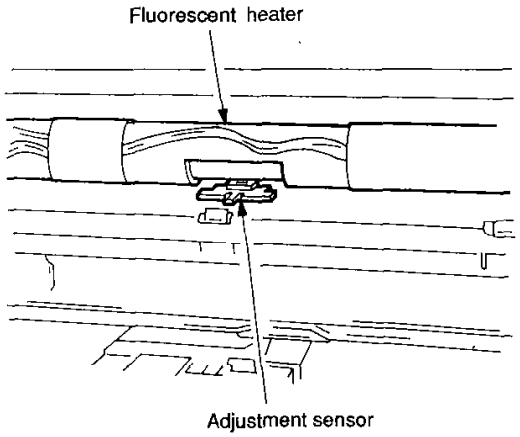

Figure 4-407

Reference:
The fluorescent lamp heater will not operate unless the copier's heater switch is turned on.

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3. Detaching the Blank Exposure Assembly

1) Open the front cover.
2) Pull the copier's open/close lever to open the copier.
3) Detach the inside cover.
4) Detach the exhaust fan and Drum cartridge. (See "Detaching the Exhaust Fan".)
5) Disconnect the connector ① (J315) on the DC controller PCB, and remove the two screws ②.

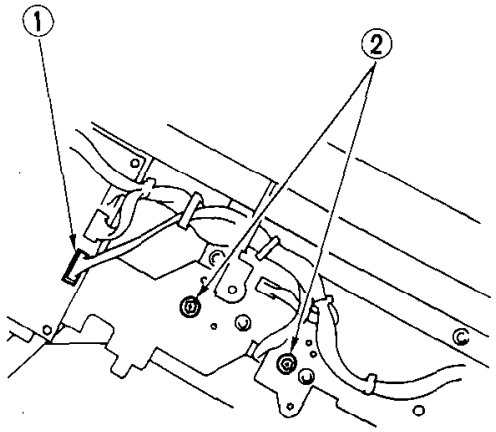

Figure 4-408

6) Push up the blank exposure assembly ③ lightly upward, and pull it out toward the bottom front.

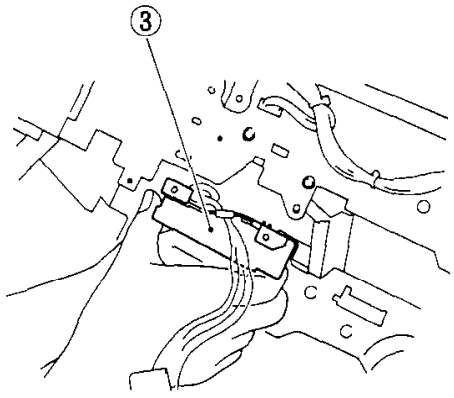

Figure 4-409

4. Detaching the Blank Exposure Lamp

1) Detach the blank exposure assembly. (See "4. Detaching the Blank Exposure Assembly.")
2) Remove the four screws ①, and disconnect the connector ②.

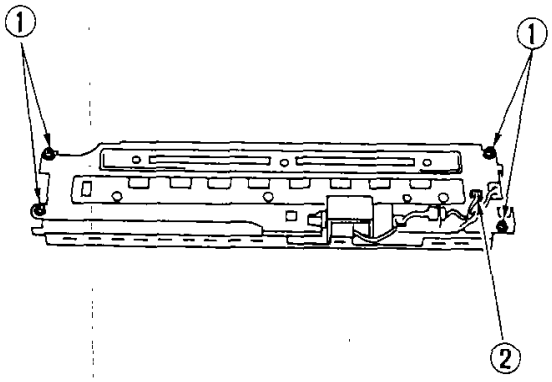

Figure 4-410

3) Disconnect the connector ③.

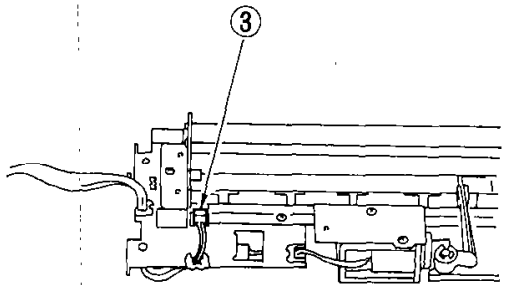

Figure 4-411

4) Remove the three screws ④, and detach the blank exposure lamp ⑤.

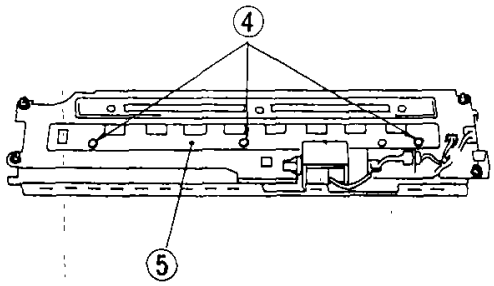

Figure 4-412

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5. Detaching the Blank Shutter Solenoid

1) Detach the blank exposure assembly.
2) Detach the blank shutter upper plate, and disconnect the connector ①. (See "4. Detaching the Blank Exposure Assembly.")
3) Remove the E-ring ②, and detach the link arm ③ from the blank shutter.
4) Remove the two screws ④, and pull out the blank shutter solenoid.

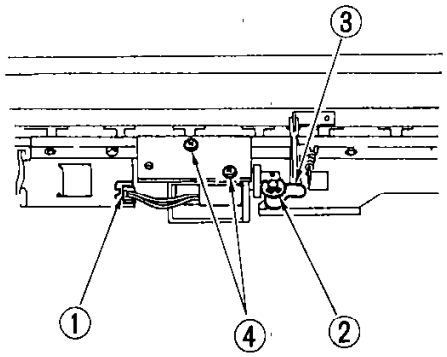

Figure 4-413

6. Positioning the Blank Shutter Solenoid

Adjust the position of the solenoid so that the bottom A is 7.7 ±0.5 mm on both sides of the shutter when the solenoid is moved in the direction of activation. When taking measurements, do not push down the shutter.

After adjustments, make sure that the solenoid moves smoothly.

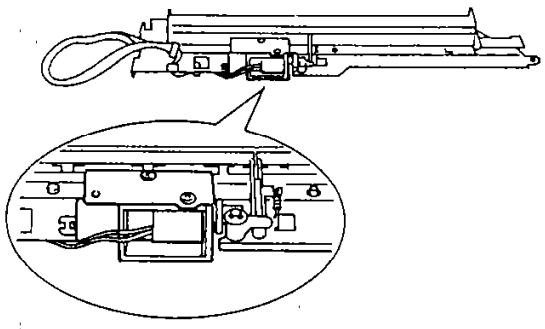

Figure 4-414ⓐ

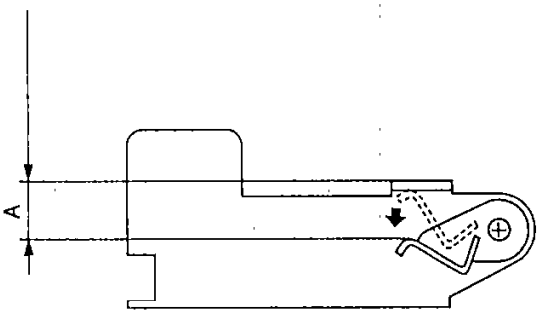

Figure 4-414ⓑ

7. Routing the Blanking Cable

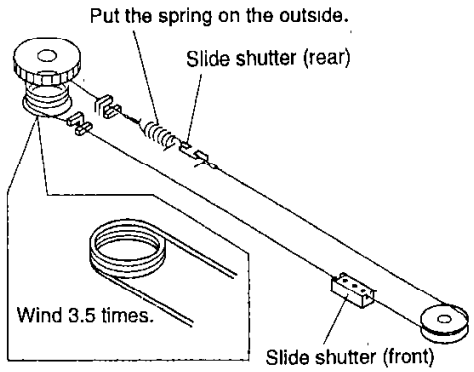

Figure 4-415

8. Positioning the Left/Right Margin

Turn the blanking shutter adjusting screw on the copier's front side plate shown in Figure 4-416 so that the standards are met.

①	clockwise turn	moves the margin to the front.
②	counterclockwise turn	moves the margin to the rear.
③	a full turn	moves about 1 mm.

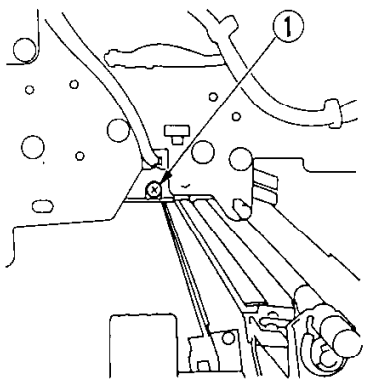

Figure 4-416

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V. CORONA SYSTEM

A. Drum Unit

1. Detaching the Drum Unit

1) Open the front door.
2) Pull out the developing assembly releasing lever ① toward the front, and turn it clockwise.

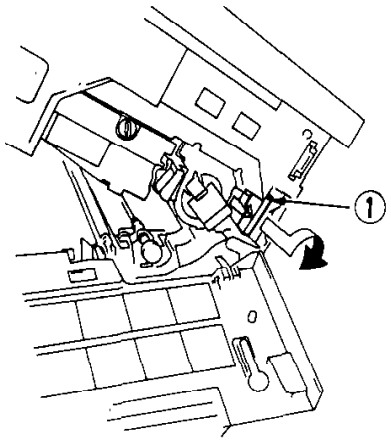

Figure 4-501

3) Open the copier's top unit.
4) Turn the knob ② counterclockwise to detach.
5) Pull out the drum unit ③ toward the front.

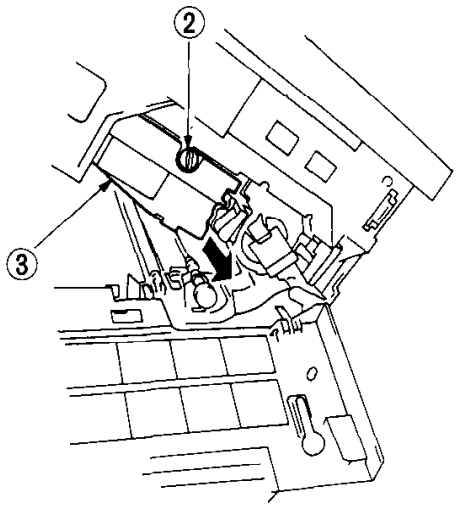

Figure 4-502

Caution:
Take care not to damage the photosensitive drum.
The photosensitive drum is highly susceptible to light, and exposure even to room lighting can lead to white spots or black bands on the copies.
As a rule, do not turn on the copier with the drum unit removed; otherwise, the registration roller and the transfer guide will interfere with each other, and rotation of the registration roller during WMUP will damage the roller.

2. Cleaning

If the surface of the photosensitive drum has become soiled, clean it with a flannel cloth coated with toner; do not use paper, lint-free or otherwise.

Caution:
Do not dry-wipe or use solvent.
Do not use drum cleaning powder.

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B. Primary Corona Assembly

1. Detaching the Primary Corona Assembly

1) Detach the drum unit.
2) Slide the lock ① of the top of the drum unit in the direction of the arrow.

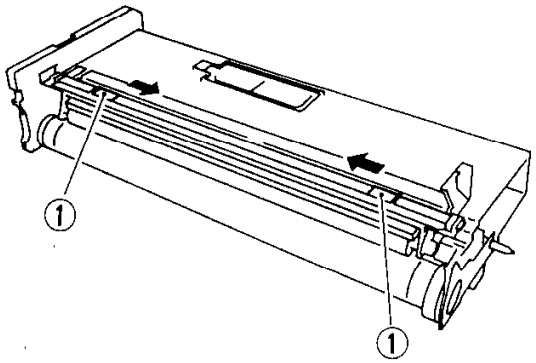

Figure 4-503

3) Detach the primary corona assembly unit ② together with the holder while rotating it in the direction of the arrow.

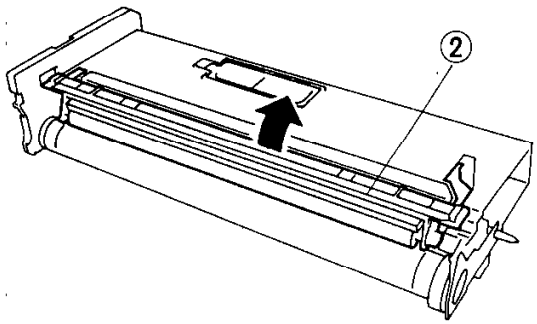

Figure 4-504

2. Cleaning the Cleaning Pad and the Primary Corona Roller

1) Detach the primary corona unit.
2) Place the primary corona assembly as shown in the figure, and clean the cleaning pad ③ with a cotton wad or folded lint-free paper.

Caution:
- Dry-wipe only. Do not use water, alcohol, or solvent.
- Be sure to use strokes in one direction only.

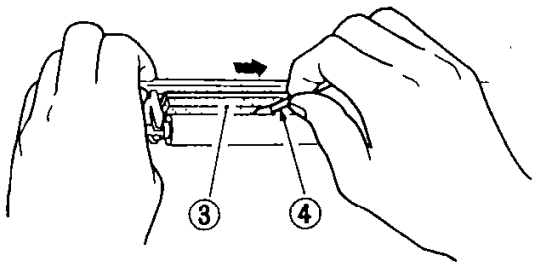

Figure 4-505

3) Clean the primary charging roller ⑤ with lint-free paper ⑥ while rotating it.

Caution:
- Dry-wipe only. Do not use water, alcohol, or solvent.
- Be sure to use strokes in one direction only.

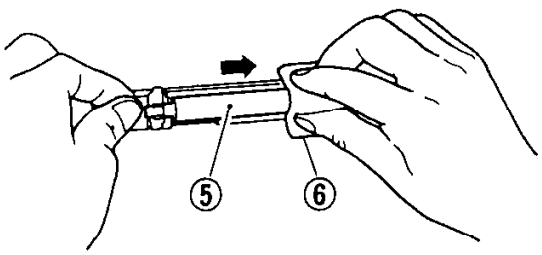

Figure 4-506

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3. Positioning the Solenoid for the Primary Charging Roller

Make adjustments by loosening the two screws used to fix the solenoid ③ in place and moving the solenoid ③ into the direction of arrow B so that ℓ in Figure 4-507 is 4.0 ±0.2 mm when the joint ① is butted against point ⓐ of the solenoid support ②.

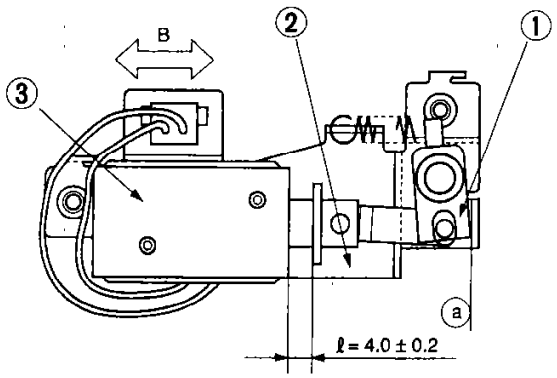

Figure 4-507

Caution:
You must make the adjustment whenever you have replaced the solenoid.

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C. Transfer Charging Assembly

1. Detaching the Transfer Roller

1) Open the front door.
2) Open the copier's top body.
3) Detach the static eliminator.
4) Detach the bushing ①, and lift the transfer roller to detach.

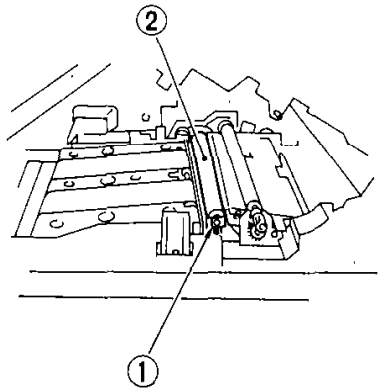

Figure 4-508

Caution:
Do not touch the surface of the roller.
Do not soil the surface of the roller.

2. Attaching the Drum Heater

1) Detach the front cover.
2) Open the copier's top body by operating the copier open/close lever.
3) Detach the inside cover.
4) Remove the three fixing screws ②, and detach the harness cover ①.

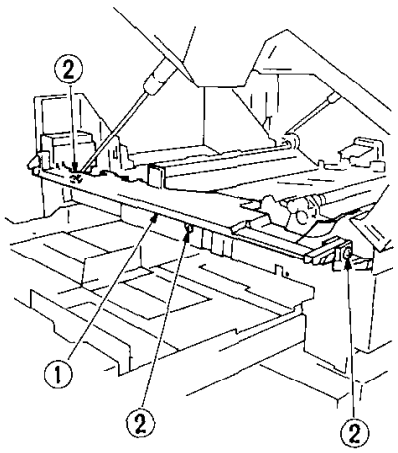

Figure 4-509

5) Detach the transfer roller and the static eliminator.
6) Detach the transfer guide.
7) While butting the two heaters against the transfer guide as shown in Figure 4-510, fix them in place using two screws ④; then, fix the harness using two harness bands ⑤ (front, rear).
8) Fix the harness with two SK binders ⑥ (front, rear) in place, and insert it into the transfer guide.

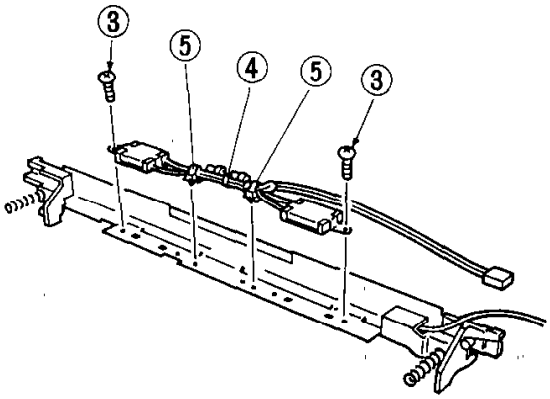

Figure 4-510

Caution:
When fixing the harness in place, make sure that the cap portions of the terminal are alternated as shown in Figure 4-511; if bundled in parallel, the harness will come into contact with the transfer roller.

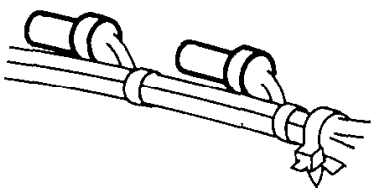

Figure 4-511

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9) Connect the connector ⑥ as shown in Figure 4-520.

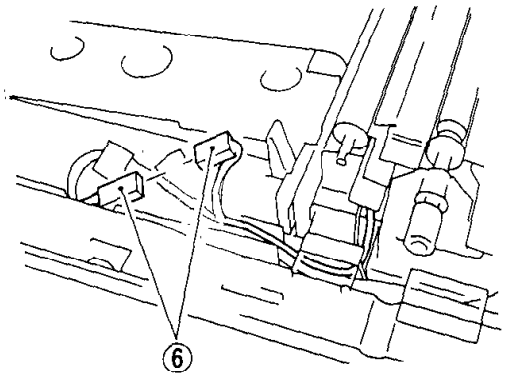

Figure 4-512

Caution:
Make sure that the spring at the rear is securely in the groove when attaching the transfer guide to the copier after attaching the drum heater.

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VI. DEVELOPING SYSTEM

1. Detaching the Developing Assembly

1) Open the copier's front door.
2) Shift the copier open/close lever to open the top unit.
3) Turn the engaging lever ① clockwise to release the developing assembly.
4) Remove the screw ②.
5) Pull out the developing assembly ③ slowly toward the front.

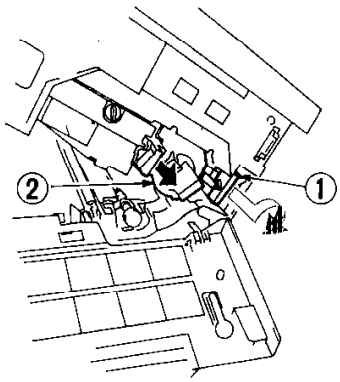

Figure 4-601

2. Detaching the Blade

1) Detach the developing assembly from the copier.
2) Remove the four screws ①, and detach the developing assembly cover ②.

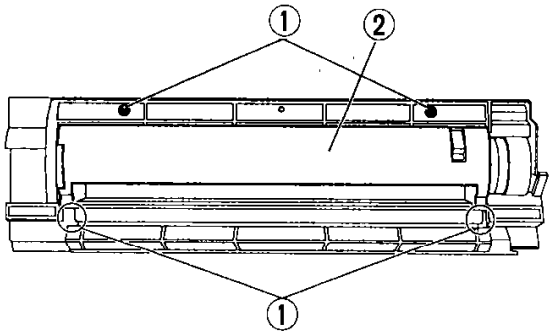

Figure 4-602

3) Place a newspaper or the like on the floor or desk, and pour the toner out of the developing assembly.
4) Remove the two screws ③, and detach the blade ④ together with its mount.

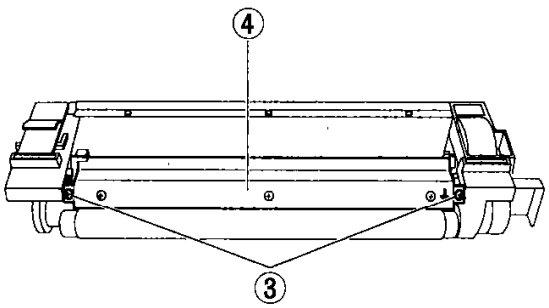

Figure 4-603

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3. Detaching the Developing Cylinder and Side Seal

1) Detach the developing assembly from the copier.
2) Detach the blade.

Caution:
The blade must be attached with high precision. Do not detach it on its own in the field, i.e., you must always detach it together with its mount.

3) Remove the screw ①, and detach the front cover ②.

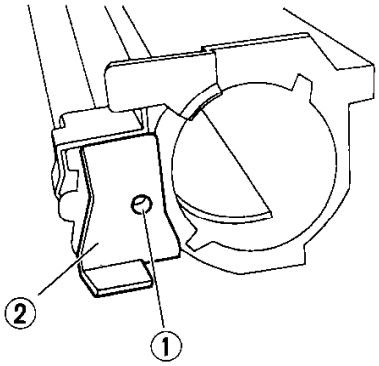

Figure 4-604

4) Remove the three screws ③, and detach the terminal ④, spacer case ⑤, and spacer ⑥.

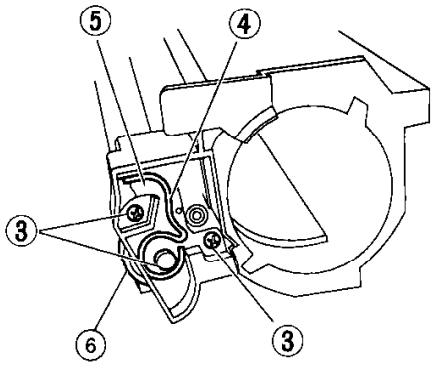

Figure 4-605

5) Remove the three E-rings ⑦, and detach the gear ⑧, gear ⑨, and gear ⑩.

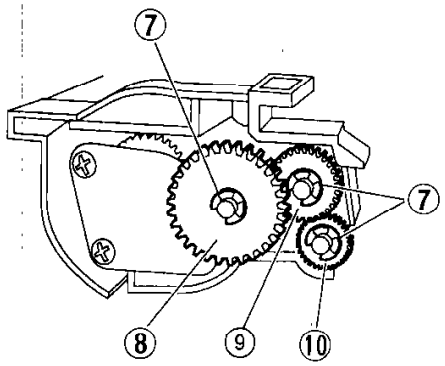

Figure 4-606

6) Remove the screw ⑪, and detach the butting spacer ⑫ and spacer case ⑬.

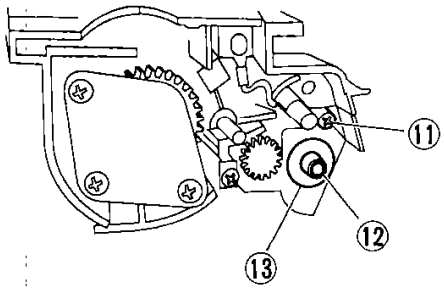

Figure 4-607

7) Detach the developing cylinder ⑭.

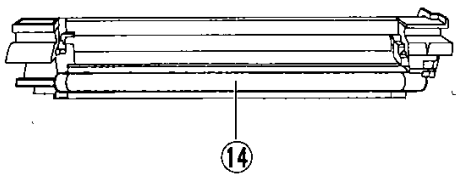

Figure 4-608

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8) Detach the side seal ⑮ (both ends).

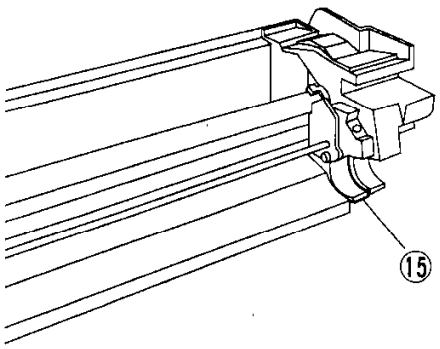

Figure 4-609

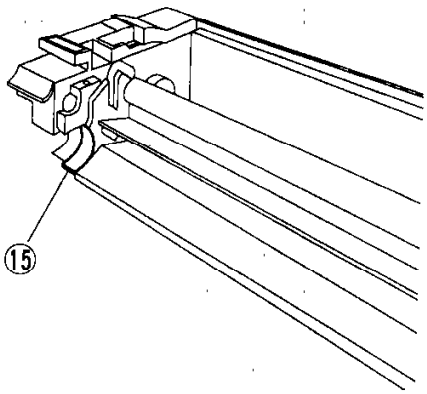

Figure 4-610

4. Attaching the Side Seal and Blade

1) Clean the area on which the side seal will be attached with alcohol.
2) Attach the side seal as indicate in Figure 4-511 (At this time, keep in mind that the side seal has different shapes at its front and rear.

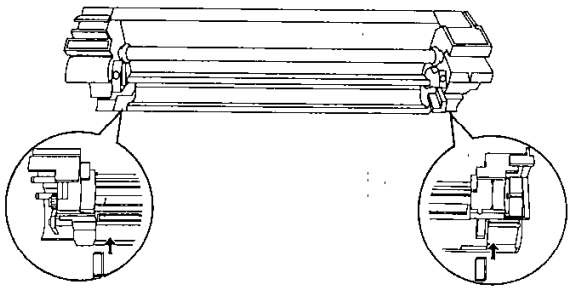

Figure 4-611

3) Make sure that the side seal and the container are in firm contact.
4) Butt the blade mount against the container, and fix it in place using two screws.
   When attaching the blade, place a sheet of paper ① on the developing cylinder to protect the developing cylinder; tighten the screws while pushing on points marked Ⓐ.

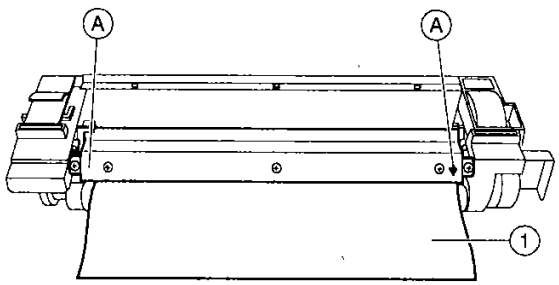

Figure 4-612

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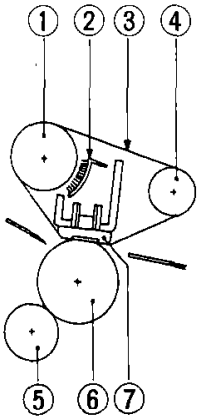
VII. FIXING SYSTEM

1. Construction



① Drive roller
② Cleaning brush
③ Fixing film
④ Tension roller
⑤ Fixing cleaning roller
⑥ Lower fixing roller
⑦ Fixing heater

Figure 4-701

Caution:
The fixing film is made of special material; do not touch it or soil it.
If you must replace the upper fixing unit, replace it on a unit basis in the field and leave component replacement to the workshop.

2. Detaching the Upper Fixing Unit

1) Open the copier's front cover.
2) Open the copier's top body.
3) Remove the two screws ①, and detach the fixing assembly cover ②.

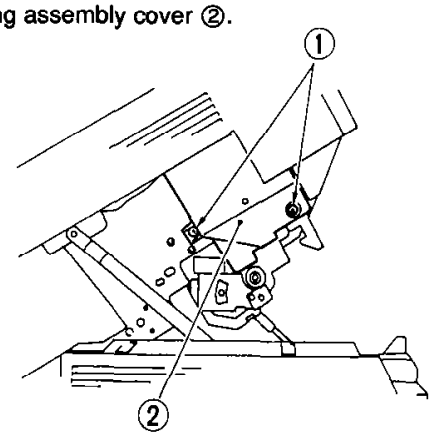


Figure 4-702

4) Disconnect the four connectors ③, and remove the screw ④.

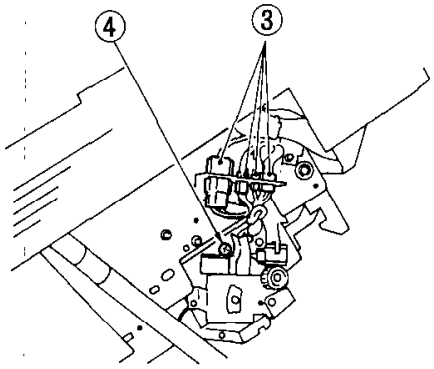


Figure 4-703

5) Open the fixing shutter ⑤, and put the screw removed in step 4) into the hole ⑥ in the front side plate.

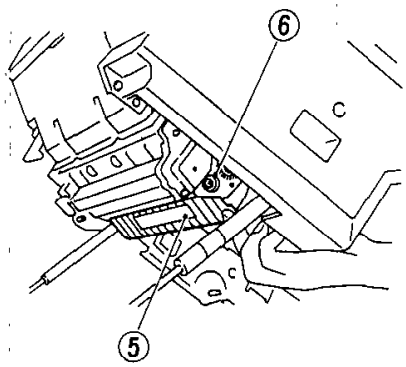


Figure 4-704

6) Pull out the upper fixing unit toward the rear.

Caution:
Do not touch the fixing film.

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3. Detaching the Fixing Film, Tension Roller, Drive Roller, Fixing Cleaning Brush, and Fixing Heater Unit

Caution:
Before going through the steps, make sure that the heater and the heater connector have cooled sufficiently.

1) Detach the upper fixing unit. (See "2. Detaching the Upper Fixing Unit on p. 4-38.")
2) Remove the screw ①, and detach the heater connector ② (front).

Caution:
If you are removing the screw ①, you must first make sure that the heater connector has cooled. The screw ① is a special screw; take care not to drop it.

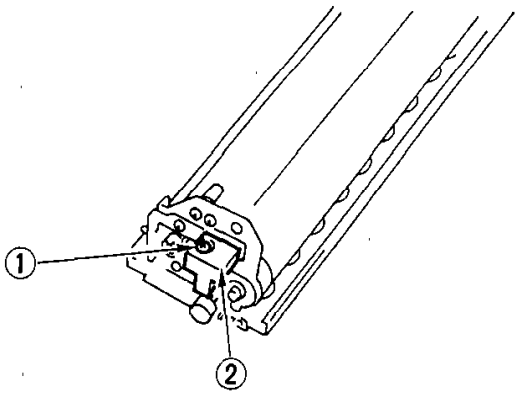

Figure 4-705

3) Remove the two E-rings ③ and the two washers ④.
4) Remove the screw ⑤.

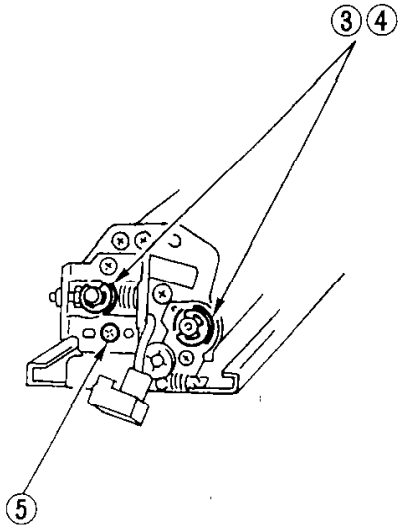

Figure 4-706

5) Release the pressure by positioning the screw ⑤ as shown in Figure 4-707.
6) Remove the screw ⑥, and detach the bushing ⑦.

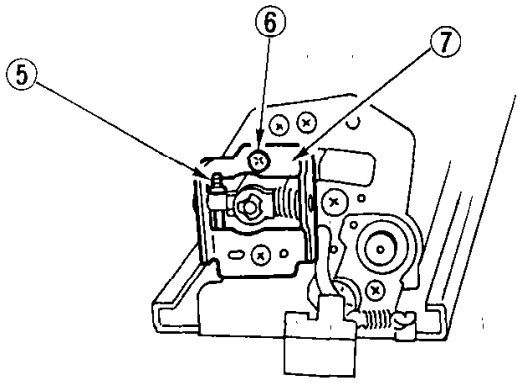

Figure 4-707

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7) Remove the screw ⑧, and detach the bushing ⑨; then, detach the upper fixing top side plate ⑩.

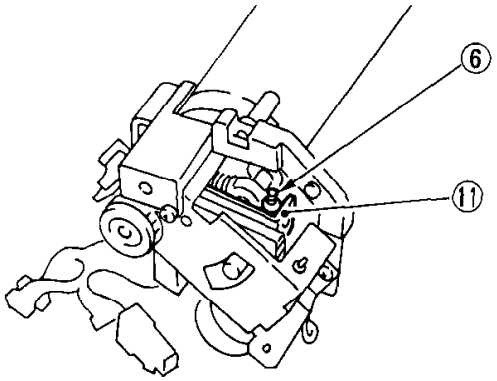

Figure 4-708

8) Release the pressure by positioning the screw ⑥ and the bushing (rear) as shown in Figure 4-709.

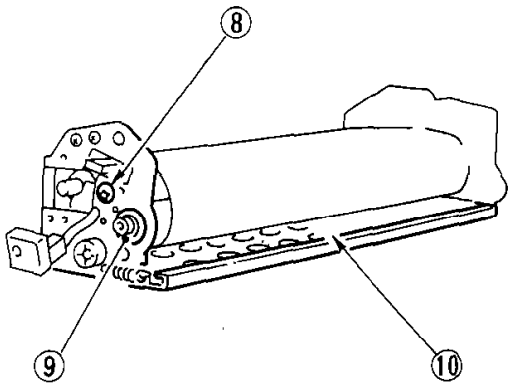

Figure 4-709

9) Pull out the fixing film ⑫ toward the front.
10) Detach the tension roller ⑬.

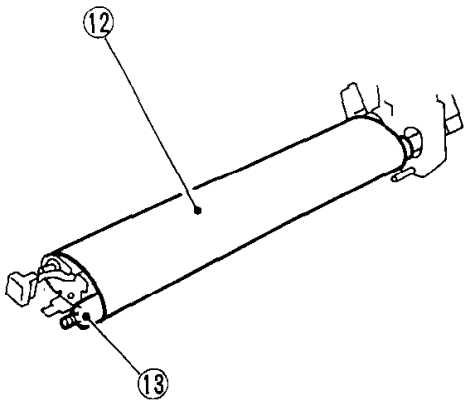

Figure 4-710

11) Remove the screw ⑭, and detach the fixing film sensor ⑮.

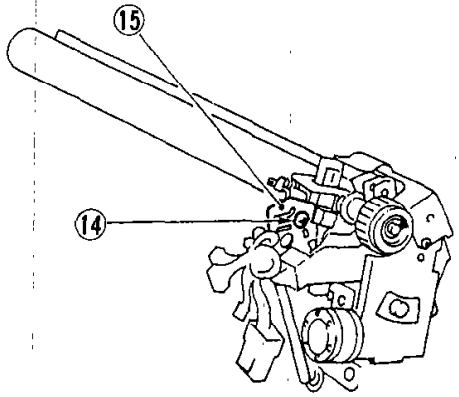

Figure 4-711

12) Remove the E-ring ⑯.

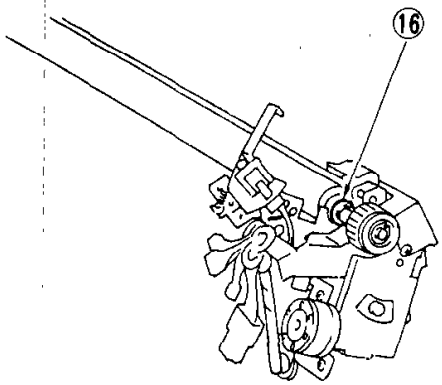

Figure 4-712

13) Remove the washer ⑰ and the bushing ⑱, and detach the drive roller ⑲.

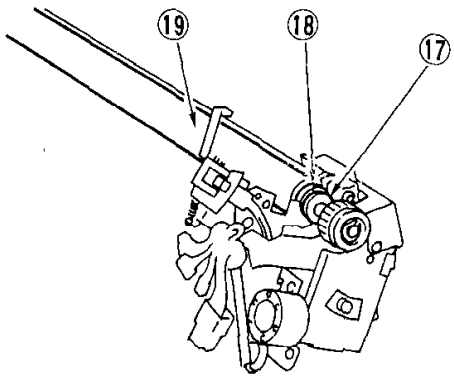

Figure 4-713

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14) Lift the delivery side, and detach the fixing cleaning brush ⑳.

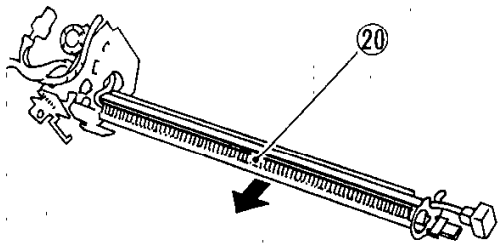

Figure 6-714

15) Remove the two screws ㉑, and detach the cover ㉒.

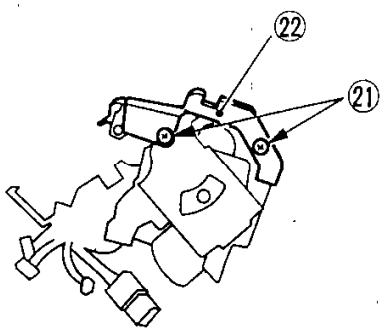

Figure 4-715

16) Remove the two screws ㉓, and detach the fixing film motor unit ㉔.

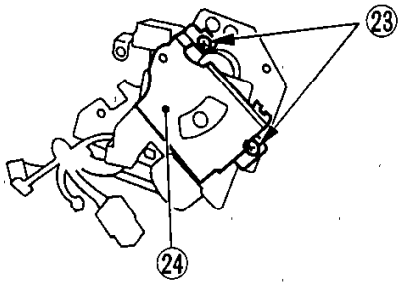

Figure 4-716

17) Remove the screw ㉕, and detach the cover ㉖.
18) Remove the screw ㉗, and disconnect the heater connector ㉘.

Caution:
If you are removing the screw ㉗, you must first make sure that the heater connector has cooled. The screw ㉗ is a special screw; take care not to lose it.

19) Remove the C-ring ㉙, and detach the bushing ㉚, leaving the fixing heater behind.

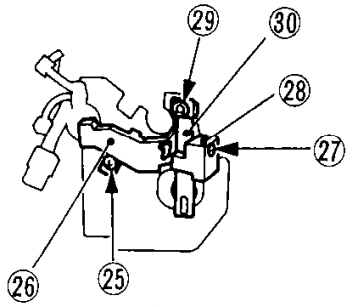

Figure 4-717

Caution:
Do not touch the surface of the heater.

4. Points to Note When Attaching the Fixing Film

- Make sure that the cut off is toward the rear.
- Make sure that the front side is aligned with the groove of the heater.

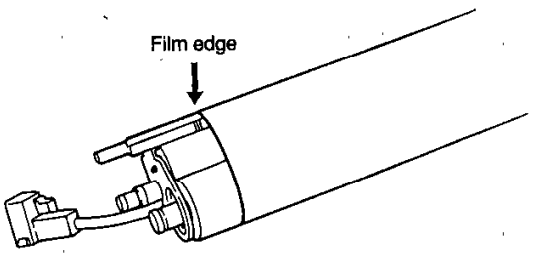

Figure 4-718

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5. Points to Note When Attaching the Heater Connector

- When attaching the heater connector to the fixing heater, take care not to damage the heater.
- When tightening the screw, hold the connector taking care that its top and bottom are free of pressure; be careful not to tighten the screw excessively.

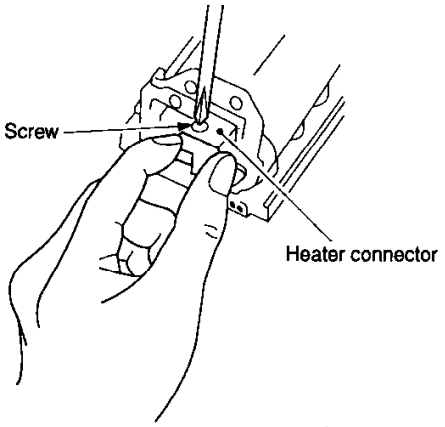

Figure 4-719

6. Points to Note When Replacing the Fixing Upper Unit

- If you have replaced the upper fixing unit, you must store the resistance of the heater in service mode (No. 304; see p. 3-77.)

Caution:
Do not touch the surface of the heater.

7. Adjusting the Fixing Film Drive Roller Pressure

If a fixing fault occurs, be sure to go through the following to adjust the pressure of the drive roller.

1) Detach the fixing cover.
2) Detach the inside cover of the copier's front side.
3) Close the copier's upper body, and insert the door switch actuator.
4) Press the service mode switch (SW302).
   - The copier enters service mode, and the display indicates '1'.
5) Press '4' on the keypad.
   - The display indicates '4'.
6) Press the AE key.
   - The copier enters operation check mode, and the display indicates '401'.
7) Press '5' on the keypad.
   - The display indicates '405'.
8) Press the Start key.
   - The copier enters fixing film initial rotation mode (405) to return the fixing film to its proper position.
   - The fixing film stops automatically as soon as it reaches its proper position.
   - The copier indicates the position of the film in the copy density indicator.
9) Open the copier's top body.
10) Check that the arrow ① is at the middle of the memory as shown in Figure 4-720.

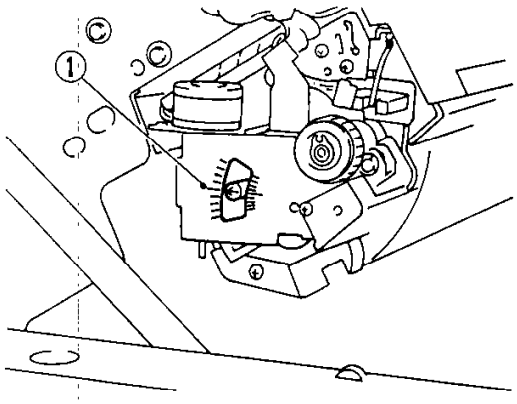

Figure 4-720 (rear view)

11) Close the copier's top body, and activate service mode.
12) Press '4' on keypad; when the display indicates '4', press the AE key.
13) Press '4' on the keypad; when the display indicates '404', press the Start key.
   - The copier enters fixing tension roller mode (404).
   - The fixing tension roller becomes fixed, and the fixing film rotates idly.
   - The count indicator indicates how long the fixing film sensor has remained on.

Caution:
If the copy count indicator keeps indicating '0' or '528' during adjustment, immediately press the Stop key to de-activate service mode.

If the copy countis '180' or higher and '348' or lower and has not changed, go to step 17).

Or, if 10's and 100's do not change, go to step 17);

14) Loosen the fixing screw ② slightly; i.e., move it to the left about 1 mm.

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15) Turn the adjusting screw ③ so that the copy count is '180' or higher' and '348' or lower.

Caution:
Adjust so that 10's and 100's will not change; ignore 1's may change ±5.)

- A clockwise turn decreases the reading.
- A counterclockwise turn increases the reading.

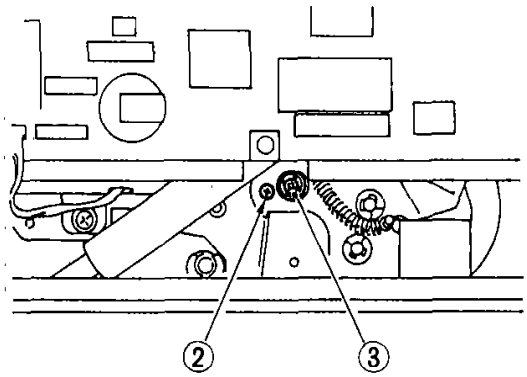

Figure 4-721

16) When the reading in the copy counter is appropriately correct, tighten the screw ②; make sure that the reading is appropriate after tightening the screw.
17) Press the Start key.
    - The copier enters check mode (404), and the fixing film rotates idly for about 2.5 min; check that the fixing film has not shifted from the adjusted position.
    - The copy count indicator indicates " 00 " or " ∩0 "; if " ∩0 " is indicated, repeat steps starting with 13).
      If " 00 " is indicated, repeat steps 4) through 10).
18) Attach the cover.

8. Detaching the Lower Fixing Unit

1) Detach the delivery roller. (See "1. Detaching the Delivery Roller." on p. 4-23.)
2) Detach the delivery cover.
3) Remove the screw ①, and detach the fixing shutter open/close block ②.

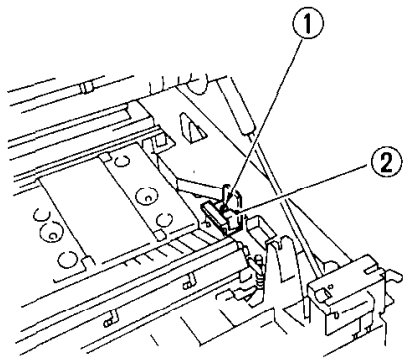

Figure 4-722

4) Remove the E-ring ③, and detach the lower fixing unit ④.

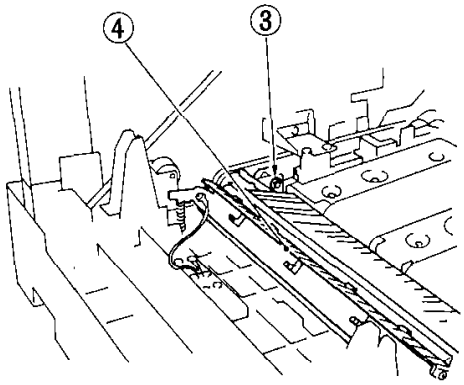

Figure 4-723

Caution:
Do not touch the surface of the fixing cleaning roller or the lower fixing roller.

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9. Detaching the Separation Claw/ Lower Fixing Claw and Fixing Cleaning Roller

1) Detach the front door.
2) Remove the screw ①, and detach the separation claw unit ②.

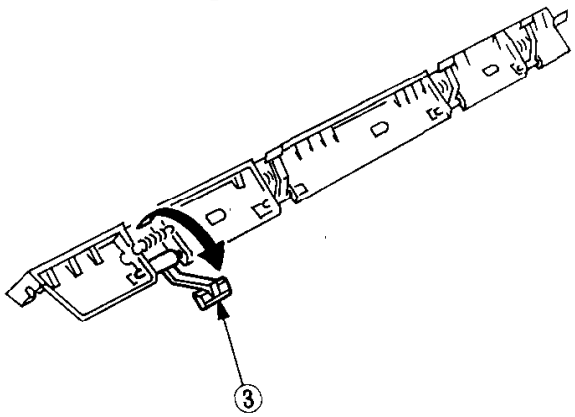

Figure 4-724

3) Detach the separation claw ③ from the separation claw unit.

Caution:
Take care not to misplace the spring.

4) Detach the lower fixing roller ④ together with the bushing ⑤.

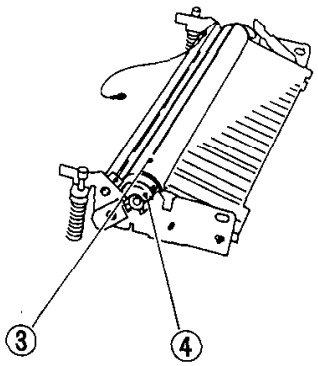

Figure 4-725

5) Detach the bushing ⑥ found at the front, and detach the HIGH-TEMPERATURE WARNING cover ⑦.

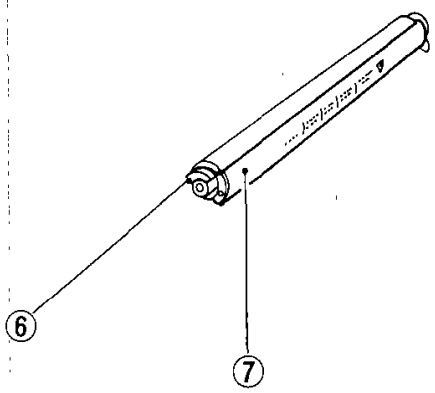

Figure 4-726

6) Lift the fixing cleaning roller to detach.

10. Adjusting the Lower Fixing Roller Nip

If fixing faults occur, make the following adjustments.

The nip is correct if as shown below; otherwise, turn the bolt to make adjustments.

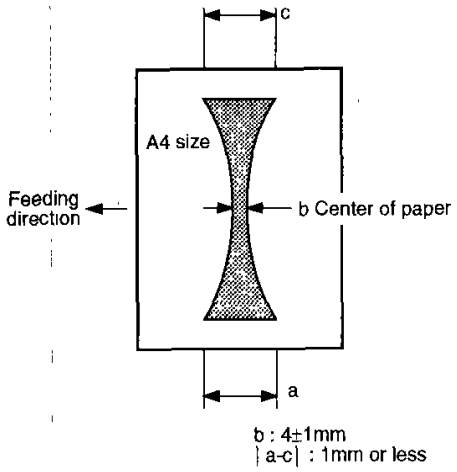

Figure 4-727

Note:
a and c represent points 10 mm from both ends of copy paper.

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a. Measuring the Nip

Measure the nip immediately after turning on the copier before the beginning of a work day.

1) Open the copyboard cover, and make a solid black copy in A4.
2) Place the copy in the multifeeder with the solid black face up.
3) Press the service mode switch (SW302) using a hex key.
   - The copier enters service mode, and the display indicates '1'.
4) Press '4' on the keypad.
   - The display indicates '4'.
5) Press the AE key.
   - The copier enters operation/check mode, and the display indicates '401'.
6) Press '6 on the keypad.
   - The display indicates '406'.
7) Press the Start key.
   - The above operations cause the multifeeder to pick up paper so that you can take measurements as in Figure 4-727; the paper will then be discharged.

Reference:
The copy paper stops while it is half way under the fixing roller; and, about 10 sec later, it will be automatically discharged.

8) Measure the nip.

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VIII. ELECTRICAL

A. DC Controller PCB

1. Detaching the DC Controller PCB

1) Disconnect the connector of the DC controller.
2) Remove the four screws ①, and detach the DC controller PCB together with its mount.

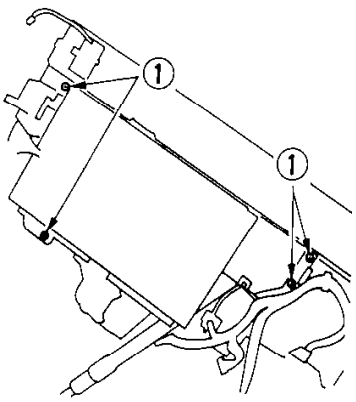

Figure 4-801

2. Points to Note When Replacing the DC Controller PCB

- When sending the DC controller PCB to the workshop or factory, put it in a conducting bag while keeping it intact with the mount. Use a conducting bag whose one side is transparent, and make sure that the face of the DC controller PCB shows through the transparent side of the bag.
- After replacement, perform following; see p. 3-83:
  ①enter the value recorded on the service label;
  ②adjust the multifeeder paper width sensor;
  ③adjust the intensioy of the scanning lamp; and
  ④adjust AE.

B. Composite Power Supply PCB

1. Detaching the Composite Power Supply PCB

1) Detach the lower rear cover and the delivery cover.
2) Remove the screw ①, and detach the switch support plate ②.
3) Remove the screw ③, and detach the power cord cover 1 ④.

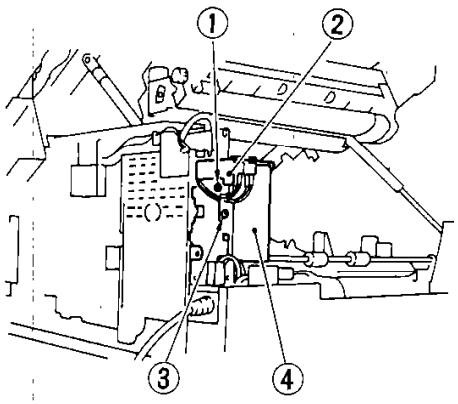

Figure 4-802

4) Remove the screw ⑤, and shift the power cord cover 2 ⑥.
5) Disconnect the AC connector ⑦, and remove the screw ⑧ to detach the grounding wire ⑨.

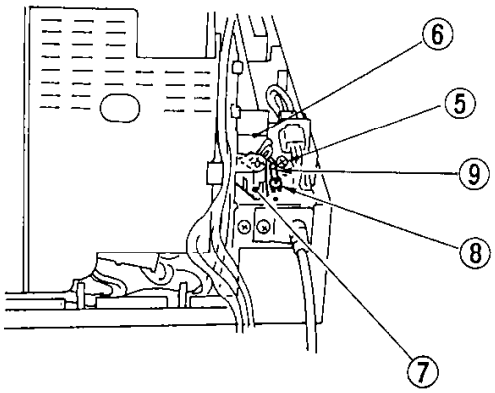

Figure 4-803

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6) Remove the three screws ⑩, and detach the power cord mount ⑪.

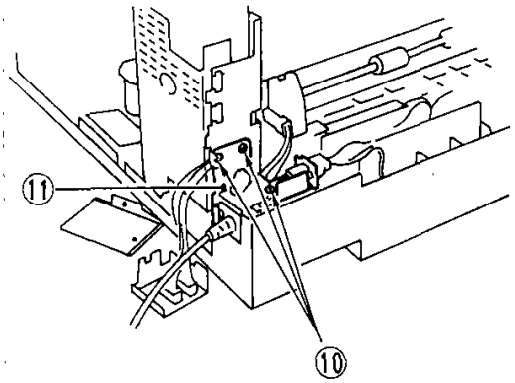

Figure 4-804

7) Disconnect all connectors from the composite power supply PCB.
8) Remove the screw ⑫, and detach the grounding wire ⑬; then, detach the harness guide ⑭ from the power supply side plate.

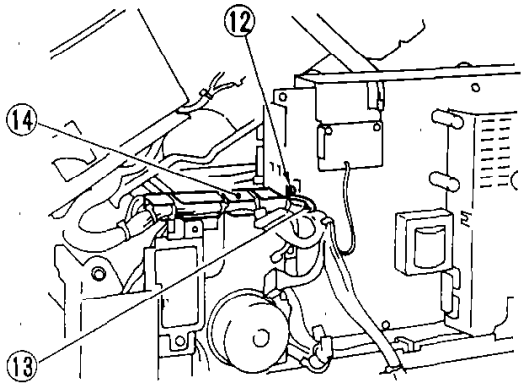

Figure 4-805

9) Remove the screw ⑮, and detach the composite power supply PCB ⑯.

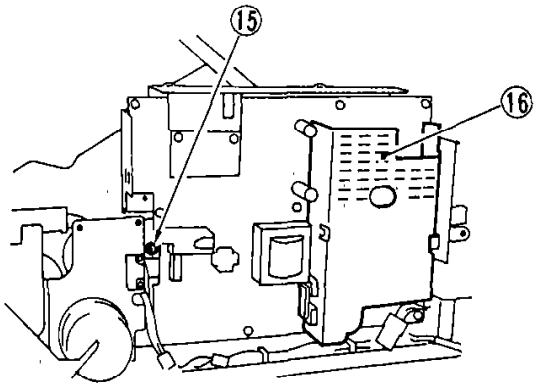

Figure 4-806

2. Points to Note When Handling the Composite Power Supply PCB

- Some capacitors used on the PCB may retain charges even when the copier remains off. For this reason, you must take care never to short the terminals of the capacitor whenever you have detached the PCB.
- Enter the settings (Nos. 315 through 318) recorded on the label attached to the composite power supply (service part) in service mode. (See p.3-77)

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C. AE Sensor PCB

1. Points to Note When Replacing the AE Sensor

- After replacement, perform the following; see p. 3-83:
  ①Adjust AE.

D. Intensity Sensor PCB

1. Points to Note When Replacing the Intensity Sensor

- After replacement, perform the following; see p. 3-83:
  ①Adjust the intensity of the scanning lamp; and
  ②Adjust AE.

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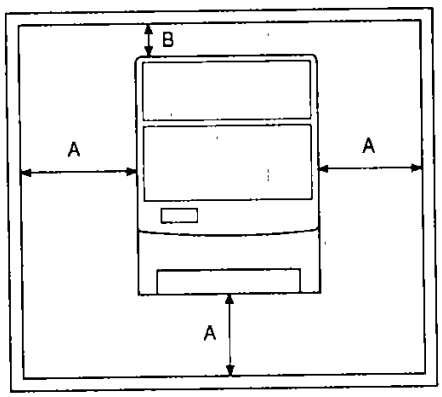
I. SELECTING THE SITE

Keep the following in mind when selecting the site of installation; if possible, pay a visit to the user's before the delivery of the machine.

- The site must provide a power outlet that may be used exclusively for the machine and that meets the rating ±10%.
- The site must be 7.5° to 30°C in temperature and 10% to 80% in humidity. In particular, avoid areas near water faucets, boilers, humidifiers, or refrigerators.
- Avoid areas near sources of fire, areas subject to dust or ammonium gas, or areas exposed to the direct rays of the sun; if necessary, provide curtains to shut out the sun.
- The site must be well ventilated.
- Make sure that the floor will remain in contact with the copier's feet and will keep the copier level.
- Make sure that there will be work space that meets the measurements shown in Figure 5-101; in other words, there must be distances A and B around the copier when measured with its front door open.



A : 50cm
B : 10cm

Figure 5-101

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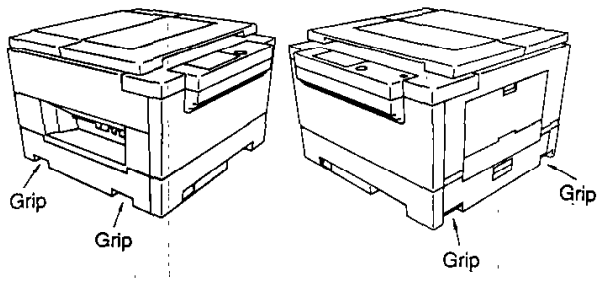
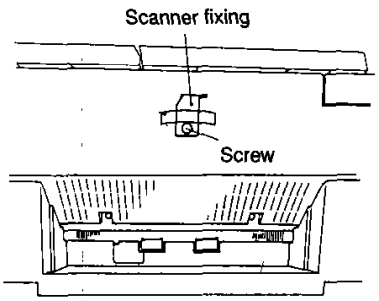
II. UNPACKING AND INSTALLING THE COPIER

When a metal part is brought in from a cold to warm environment, droplets of water can develop on the surface of the part. This phenomenon is called *condensation*, and condensation in a copier can lead to faulty images. If the copier has been moved from a cold to warm place, leave it alone for about one hour or more before unpacking it.

A. Unpacking and Removing Fixings

Step	Work	Remarks
1	Unpack the copier.	
2	Detach the plastic cover, and place the copier on the pedestal holding its grips; be sure to work in a group of two. Install the Cassette Feeding Module-B1 or -A1 (option) according to its Installation Procedure if the copier is to be placed on it.	 **Figure 5-201**
3	Open the cardboard box, and take out all the accessories.	Check that none of the following accessories is missing: • Copy tray • Cassette (Universal) • Operator's Manual • Drum unit • Installation Procedure • Toner • Drum replacement warning label
4	Remove all tape from the outside of the copier. Take out the cassette from the cardboard box, and remove the cushions from inside the cassette; then, slide the cassette into the copier.	Make sure that the paper size plate and size label (1 pc. each) is inside the cassette.
5	Remove the tape from the scanner fixing found on the outside of the left cover, remove the screw, and slide the fixing to the right to detach it to the front. • Keep the fixing stored for possible relocation of the machine.	 **Figure 5-202**

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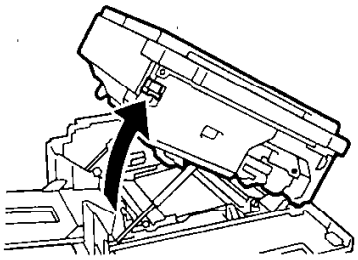
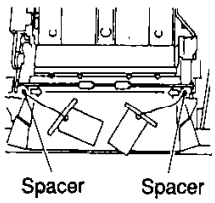
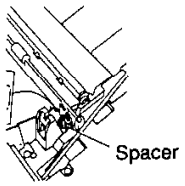
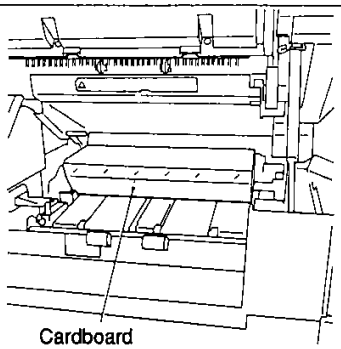
Step	Work	Remarks
6	Open the copyboard cover, and remove the protective sheet.	
7	Open the front cover, and push the lever found on the left side up in the direction of the arrow to open the copier's top body.	 Figure 5-203
8	Pull up the spacer (front and rear, 1 pc. each) of the fixing roller in the direction of the arrow until a click is heard.	 Figure 5-204
		 Figure 5-205
9	Remove the two pieces of cardboard (cushion) from the feeding assembly.	 Figure 5-206

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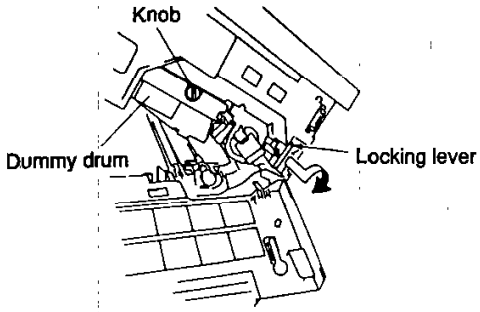
Step	Work	Remarks
10	Pull the developing locking lever toward the front, and turn it clockwise to release it.	 Figure 5-207
11	Detach the knob, and remove the dummy drum from the copier. (Keep the knob for later.)	
12	Remove the developing assembly, and check that the developing cylinder is free of scratches or dirt.	
13	Install the developing assembly, and lock the developing assembly.	
14	Close the copier's top unit.	

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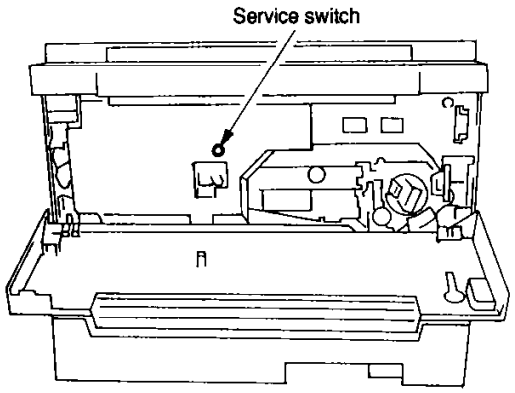
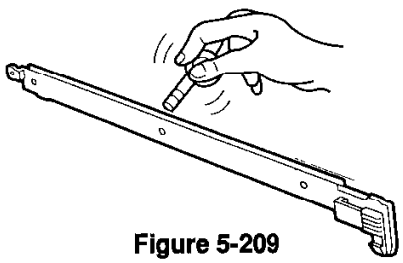
B. Turning On the Copier

Step	Work	Remarks
1	Connect the power plug to the power outlet.	**Caution:** • Make sure that the power outlet is the rating ±10%.
2	Turn on the power switch.	Make sure that the Add Paper message flashes. • Press the keypad and the Clear key to make sure that the copy count indication is correct.
3	Supply toner according to the instructions given on the toner supply label attached behind the front door.	
4	Push the service switch (SW302) with a hex key. • Execute 'No. 401' in service mode; press 4 on the keypad, AE key, and Start key in sequence.	Toner is supplied from the toner container to the developing assembly. **Caution:** Do not turn off the power or pull out the door switch actuator while the machine is in operation.  **Figure 5-208**
5	Make sure that step 5 has been completed; then, turn off the power, and open the copier's top unit.	
6	Remove the static eliminator, and clean it with the static eliminator brush; then, set the static eliminator.	 **Figure 5-209**
7	Release the developing assembly by the developing assembly releasing lever.	

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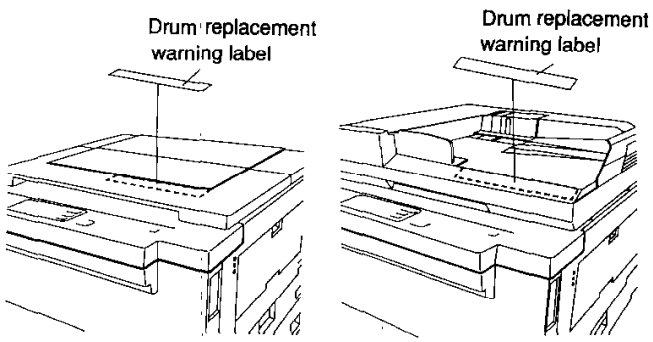
Step	Work	Remarks
8	Install the drum unit.	See "C. Attaching the Drum Unit."
9	Lock the developing assembly, and close the copier's top unit.	
10	Turn on the power.	
11	Execute 'No. 313' and 'No. 314' to enter the value recorded on the label.	To Enter the Value Select 'No. 313' in service mode, and enter the value (PRIMARY) using the keypad. (If '-', press the % key before entering the value.) Then, press the Start key to store the value. Likewise, enter the value for 'IP_OFST' by executing 'No. 314' in service mode.
12	Set the settings for user mode and settings mode in service mode to suit the needs of the user.	
13	Tailor the cassette to suit the desired size by operating the size guide plate and size detecting lever; then, attach the size label.	See "E. Changing the Cassette Size."
14	Put copy paper in the cassette, and set the cassette in the copier.	• Make sure that the Add Paper message turns off. • Make sure that the paper indicator matches with the size of the cassette. • Press the keys on the control panel other than the Copy Start key to make sure that all respective operations are normal.
15	Attach the copy tray.	
16	Attach the drum replacement warning label. (North America only)	W/O ADF W/ ADF  **Figure 5-210**
17	Remove the door switch activator, and close the front door.	

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C. Checking the Images and Operations

Step	Work	Checks/Remarks
1	Place the Test Sheet on the copyboard, and check the copies.	• Make sure there is no abnormal sound. • Check the copy images for each standard reproduction ratio. • Make sure that as many copies as specified are made normally. • If the copy image is faulty, perform the "Image Adjustment Basic Procedure."
2	Make copies in manual mode.	Make sure that the copying operation is normal.
3	Make sure that the external covers are free from scratches and deformations.	
4	Clean the area around the copier.	
5	Move the machine to its site of installation.	Make sure that the copier is more or less level.

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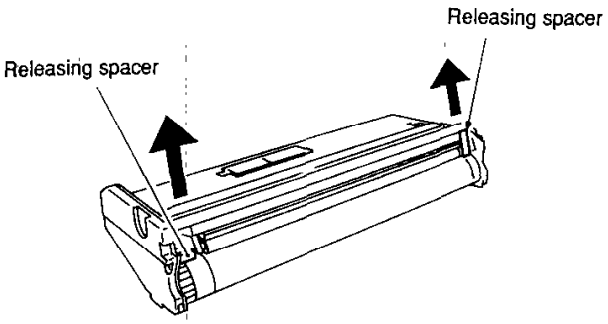
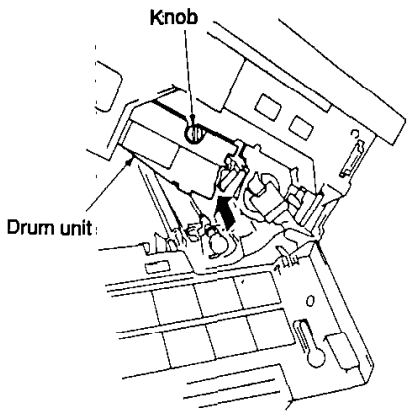
D. Attaching the Drum Unit

Step	Work	Checks/Remarks
1	Unpack the drum unit, and remove the light-blocking sheet.	
2	Remove the primary charging roller releasing spacer.	 **Figure 5-211** Take care not to damage the surface of the drum and not to touch the primary charging roller.
3	Set the drum unit to the copier, and fix it in position using the knob used to keep the dummy drum.	 **Figure 5-212** Be sure to insert the drum unit straight along the copier's rail.
4	Fill out the label, and attach it to the drum unit cover.	日付 data date Datum カウンター counter compteur Zähler 備考 notes note Notiz **Figure 5-213**

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E. Changing the Cassette Size

Change the cassette size to suit the user's needs.

1) Slide the cassette out of the copier.
2) Move the length plate inside the cassette to suit the length of the paper size.

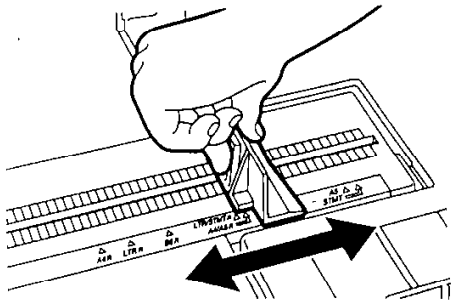

Figure 5-214

3) Move the width plate inside the cassette to suit the width of the paper to be used.

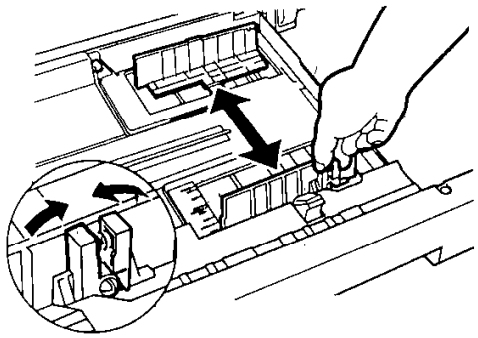

Figure 5-215

4) Move the paper size lever found toward the front of the cassette so that it is aligned with the size of the paper to be used.

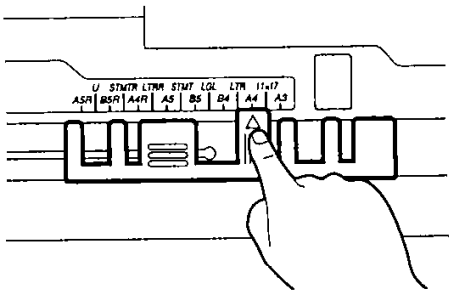

Figure 5-216

Caution:
Failure to adjust the paper size lever will lead to jams or soiling.

5) Take out the paper size plates for the cassette, and pick out the four plates representing the most frequently used size; attach the labels.

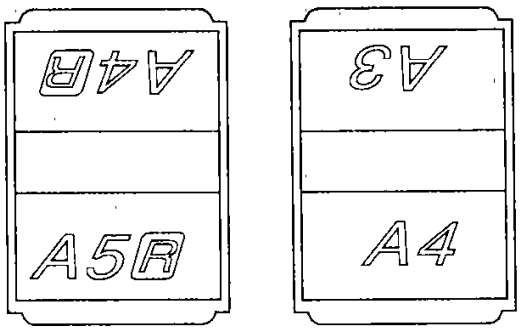

Figure 5-217

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6) Set the paper size plates selected in step 4).

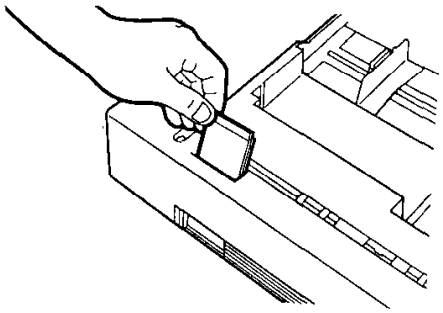

Figure 5-218

Caution:
If you are setting the plate for the position representing the universal (u) cassette, you must perform the work described for "universal cassette paper size setting (505); see p. 3-81.

■ Points to Note When Handling the Photosensitive Drum after Installation

The copier's photosensitive drum is highly susceptible to light; mere exposure to room light can affect the drum enough to produce white spots or black lines on the copies. Keep the following in mind:

- Do not spend more than 5 min when removing jams.
- After detaching the drum unit from the copier during servicing work, be sure to protect it in the light-blocking sheet that came with the drum or fresh copy paper, and place the drum in a dark place.

Do not touch the photosensitive drum or primary charging roller.

If you have soiled the surface of the drum inadvertently, wipe it using a flannel cloth coated with toner; do not use paper, lint-free or otherwise.

Do not dry wipe or use solvent to clean the drum.

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III. RELOCATING THE COPIER

If you must relocate the copier by truck or using other means of transportation, perform the following work:

Step	Work	Checks	Remarks
1	Move the lens to the Direct position.		*Direct position* refers to the position of the lens after warm-up initiated by power-on.
2	Take out the drum unit.	Put the drum unit in a box for transport.	
3	Fix the scanner in place.		Use the fixing removed at time of installation.
4	Tape the front door and delivery assembly in place.		
5	Place A3 copy paper on the copyboard glass, and tape the copyboard cover in place.		

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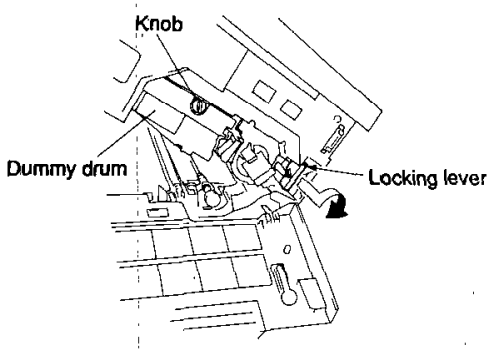
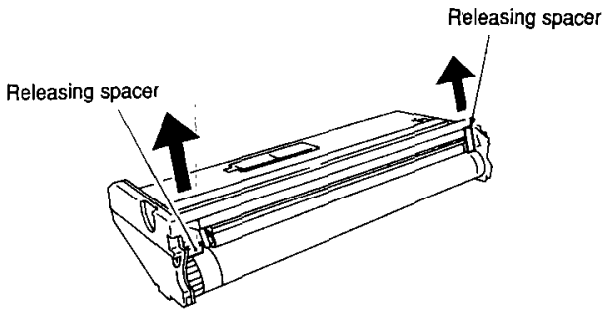
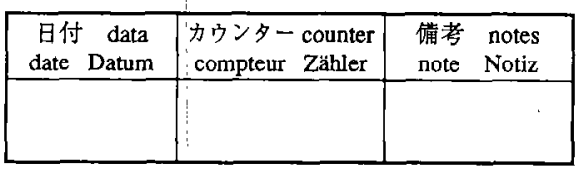
IV. REPLACING THE DRUM UNIT

Go through the following when replacing the drum unit:

Step	Work	Remarks
1	Turn off the copier, and open the front door and the copier's top unit.	
2	Release the developing assembly, and remove the knob to remove the drum unit.	 Figure 5-401
3	Unpack the new drum unit, and remove the light-blocking sheet.	
4	Remove the primary charging roller releasing spacer.	 Figure 5-402 Take care not to damage the surface of the drum and not to touch the primary charging roller.
5	Set the drum unit to the copier, and attach the knob used to fix the old drum unit.	
6	Fill out the label, and attach it to the drum unit cover.	 Figure 5-403
7	Lock the developing assembly, and close the copier's top unit.	

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Step	Work	Remarks
8	Turn on the door switch using the door switch actuator; then, shift the power switch to 'ON'.	
9	Execute 'No. 313' and 'No. 314' in service mode to enter the value recorded on the drum label.	To Enter the Value Select 'No. 313' in service mode, and enter the value (PRIMARY) using the keypad. (If '-', press the % key before entering the value.) Then, press the Start key to store the value. Likewise, enter the value for 'IP_OFST' by executing 'No. 314' in service mode.
10	Remove the door switch actuator, and close the front door.	

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V. INSTALLING THE CONTROL CARD IV N

Caution:
Be sure to disconnect the copier's power plug before starting the installation work.

1) Open the front cover
2) Open the copier's top body by operating its open/close lever.
3) Detach the front cover.
4) Take out the cartridge.
5) Detach the inside cover.
6) Loosen the screw on the upper rear cover.
7) Loosen the two screws on the copyboard glass.
8) Detach the face plate ① from the control card cable inlet.

(When detaching the face plate ①, detach it in the direction of the arrow using pliers or screwdriver.)

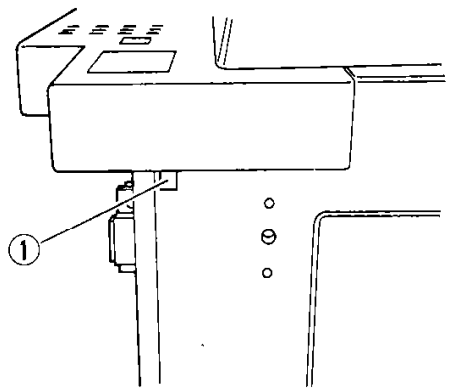

Figure 5-501

9) Fix the Control Card IV N ③ to the copier using a screw ② (M4×12); at the time, be use that the copier's emboss ④ is fitted in the hole in the Control Card IV N.

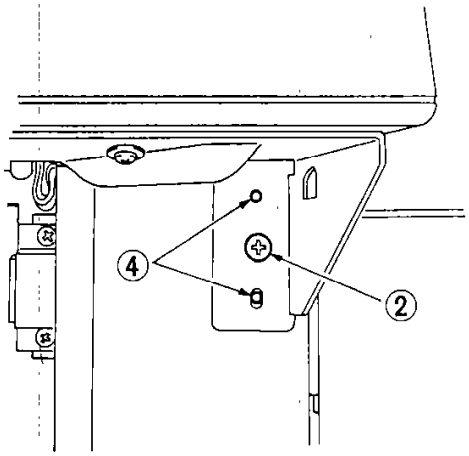

Figure 5-502

10) Disconnect the copier's dummy connector ⑤.

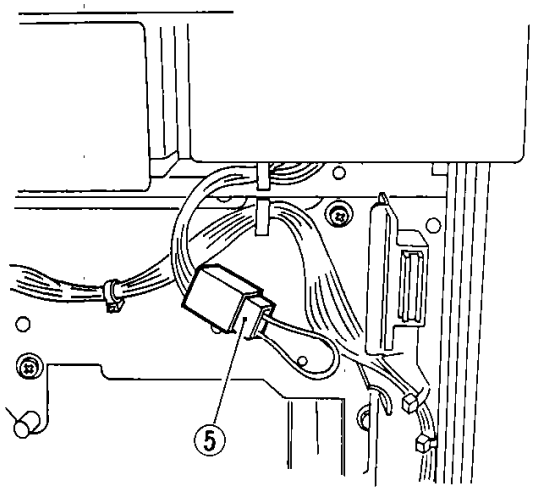

Figure 5-503

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11) Connect the connector ⑥ of the Control Card IV N.

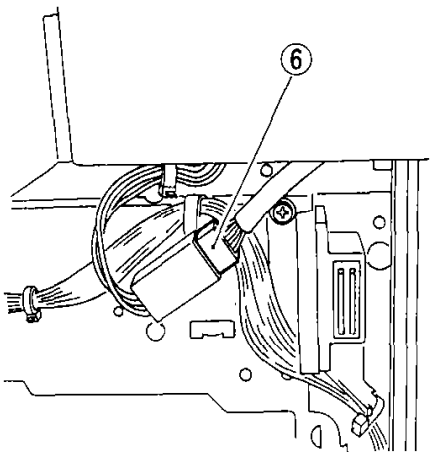

Figure 5-504

12) Connect the copier's power plug, and turn on its power switch to check the operation of the Control Card IV N.

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I. PERIODICALLY REPLACED PARTS

Some parts of the copier must be replaced on a periodical basis to ensure a specific level of performance; replace them as indicated regardless of the presence of visible damage.
Plan the replacement to coincide with a scheduled visit.

A. Periodically Replaced Parts

as of MAY 1994

No.	Parts name	Parts No.	Q'ty	Life (copies)	Remarks
1	Static eliminator	FG5-2912	1	60,000	

The above values are estimates only and subject to change based on the future data.

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II. DURABLES

The parts shown in the table may require replacement because of deterioration or damage over the period of warranty; replace them when they fail using the table as a guide.

A. Copier

as of MAY 1994

No.	Parts name		Parts No.	Q'ty	Life (copies)	Remarks
1	Pick-up roller		FB2-2251-000	1	100,000	See Note 1.
2	Pick-up separation pad		FG5-2922-000	1	100,000	See Note 1.
3	Multifeeder pick-up roller		FB1-8581-000	1	100,000	See Note 1.
4	Multifeeder separation pad		FB2-2167-000	1	100,000	
5	Fluorescent lamp		FH7-3271-000	1	100,000	
6	Fixing cleaning roller		FB2-2323-000	1	100,000	
7	Transfer roller		FB2-2223-000	1	100,000	
8	Upper fixing unit	100V	FG5-2926-000	1	200,000	
		115V	FG5-2927-000			
		220/240V	FG5-2928-000			
9	Lower fixing roller		FB2-2316-000	1	200,000	
10	Lower fixing separation claw		FB1-7275-000	1	200,000	
11	Pre-exposure lamp		FG5-2891-000	1	200,000	Replace with item 12 or 12-1 through 12-4.
12	Developing assembly		FG5-3275-000	1	100,000	
12-1	Developing cylinder		FB2-3834-000	1	100,000	
12-2	Side seal (right)		FB2-3825-000	1	100,000	
12-3	Side seal (left)		FB2-3826-000	1	100,000	
12-4	Developing blade unit		FG5-3276-000	1	100,000	

Note:

1. The life represents the number of copies actually made using the part.
2. The above values are estimates only and subject to change based on future data.

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B. Cassette Feeding Module-B1/Cassette Feeding Module-A1

as of MAY 1994

No.	Parts name	Parts No.	Q'ty	Life (copies)	Remarks
1	Pick-up roller	FB2-2251-000	1	100,000	Actual usage
2	Pick-up separation pad	FG5-3614-000	1	100,000	Actual usage

Note:
The above values are estimates only and subject to change based on future data.

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III. PERIODICAL SERVICING

The copier does not have items that require periodical servicing; however, it is recommended that the following work items be performed during any visit to the user's.

Step	Work	Checks	Remarks
1	Meet the person in charge of the copier.	Check the general conditions.	
2	Make test copies in Direct, Reduce, Enlarge, and page separation.	Check the following: a. image density b. white background for soiling c. characters (clarity) d. leading edge (non-image width) e. left/right margin f. fixing, registration, back (soiling) g. abnormal noise h. counter (operation)	standard: 2.5 ±1.5 mm (Direct, one-sided) standard: 2.5 ±1.5 mm (Direct/one-sided)
3	Clean the static eliminator and feeding assembly.		Use the special brush (accessory) to clean the static eliminator.
4	Clean the fixing/delivery assembly. • paper guide plate • separation claw		Use solvent. Use solvent.
5	Perform work according to the number of copies made (See p. 6-2).		
6	Clean the copyboard cover and copyboard glass.		
7	Make test copies.		
8	Make sample copies.		
9	Arrange the sample copies, and clean the area around the copier.		
10	Record the final counter reading.		
11	Fill out the Servicing Sheet, and report to the person in charge.		

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IV. SERVICING CHART

Caution:
Do not use solvents or oils other than those specified.

△ : clean ● : replace ☆ : lubricate □ : adjust ◎ : inspector clean

Unit	Parts	every 20,000	every 60,000	every	every year	Remarks
External	Copyboard glass	△				Use alcohol.
Pick-up assembly	Pick-up roller	△				
Scanner drive assembly	Scanner rail		☆			Use alcohol solution; then, apply lubricant.
Feeding assembly	Transfer guide assembly	△				Use a moist cloth.
	Feeding belt	△				
	Feeding assembly mount	△				
Optical assembly	Reflecting plate for original exposure	△				Use a blower brush; if the soiling is excessive, use alcohol.
	Side reflecting plate for original exposure	△				
	No. 1 through No. 6 mirrors	△				
	Lens	△				
	Dust-proofing glass	△				
Drum kit	Clearner base	△				Actual use of the drum kit.
Charging assembly	Charging roller	△				
	Charging roller cleaner	△				
	Static eliminator	△	●			
Developing assembly	Developing spacer	△				
Fixing assembly	Lower fixing roller	△				Use cleaning oil.
	Separation claw (lower)	△				Use solvent.
	Fixing inlet guide	△				
Delivery assembly	Delivery guide/ tray	△				
	Delivery spacer	△				

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Code	Cause	Description
E220	• Scanning lamp (faulty) • Composite power supply (faulty) • DC controller (faulty)	• The lamp is identified as being on during standby. • The lamp is identified as being off during copying operation.
E240	• DC controller (faulty) • Composite power supply (faulty)	A communication error is detected between the CPU (Q301) on the DC controller and the CPU (Q512) on the composite power supply.
E261	• Power supply frequency (fluctuation) • Composite power supply (faulty)	The intervals of the zero cross signal is outside the tolerance.
E710	• DC controller (faulty)	The IPC (Q104) cannot be initialized at power-on.
E711	• DC controller (faulty)	An IPC communication error has been detected twice within 1 sec.
E712	• DC controller (faulty) • DF controller (faulty) • Connector (poor contact)	An error in communication with the DF cannot be cleared.
E717	• DC controller (faulty) • ASSIST controller (faulty) • Communication (with ASSIST)	• A communication with ASSIST has been successfully but failed in the middle. • An open circuit is detected on the line with ASSIST.

Table 3-801-3

Clearing an Error Code (back-up data)

When the self diagnosis mechanism has been activated, the copier may be reset by turning its power off and on. However, this does not work for E000, E001, E002, E003, E004, or E007; this arrangement is to prevent the user from causally resetting any of the errors, which could damage the film or the heater in side the fixing assembly.

If E000, E001, E002, E003, E004, or E007 is indicated, remove the cause and clear the back-up data as follows:

1) Open the front door, and insert the door switch actuator.
2) Press the power switch while holding down the service mode switch (SW302) on the DC controller with a hex key.
3) The power should go off in about 2 sec; turn on the power.

Caution:
Detection of E000, E001, E002, E003, or E004 automatically turns off the copier. To check the type of error in service mode, go through the above steps after disconnecting the fixing heater.

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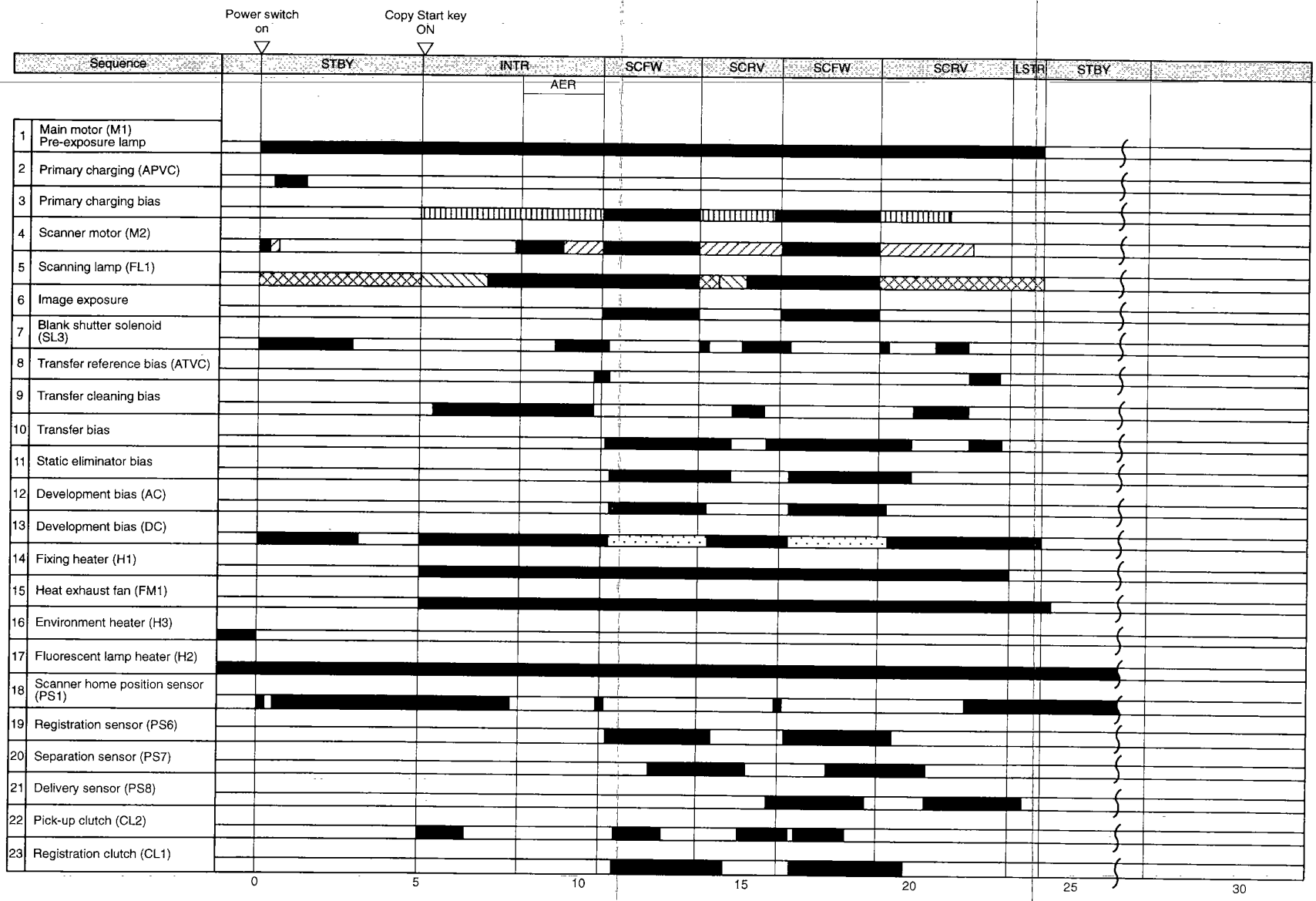
A. GENERAL TIMING CHART

(A4, 2 copies, Direct, from copier cassette)



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B. SIGNALS AND ABBREVIATIONS

1. Signals and Abbreviations

ACBIAS	DEVELOPING AC BIAS VOLTAGE DETECTION signal
AE	AE SENSOR OUTPUT signal AE
AEREF	AE SENSOR REFERENCE signal AE
ATTH	AMBIENT TEMPERATURE THERMISTOR signal
BIASS	DEVELOPING DC BIAS VOLTAGE DETECTION signal
BPWM	DEVELOPING BIAS DRIVE command
BSHP	BLANKING SHUTTER HOME POSITION signal
BSSLD	BLANKING SHUTTER SOLENOID DRIVE command
C2PUCLD	CASSETTE2 PICK-UP CLUTCH DRIVE command
C2SZ-1	CASSETTE2 SIZE signal
C2SZ-2	CASSETTE2 SIZE signal
C2SZ-3	CASSETTE2 SIZE signal
C2SZ-4	CASSETTE2 SIZE signal
C2PD	CASSETTE2 PAPER DETECTION signal
C2VPD	CASSETTE2 VERTICAL PATH PAPER DETECTION signal
C3PD	CASSETTE3 PAPER DETECTION signal
C3PUCLD	CASSETTE3 PICK-UP CLUCTH DRIVE command
C3SZ-1	CASSETTE3 SIZE signal
C3SZ-2	CASSETTE3 SIZE signal
C3SZ-3	CASSETTE3 SIZE signal
C3SZ-4	CASSETTE3 SIZE signal
C3VPD	CASSETTE3 VERTICAL PATH PAPER DETECTION signal
CCD	CONTROL CARD DRIVE command
CCDT	CONTROL CARD DETECTION signal
CDC	COPY DENSITY CORRECTION signal
CHSLD	CHANGE SOLENOID DRIVE command
CMA	CASSETTE UNIT MOTOR PULSE command A
CMA*	CASSETTE UNIT MOTOR PULSE command A*
CMB	CASSETTE UNIT MOTOR PULSE command B
CMB*	CASSETTE UNIT MOTOR PULSE command B
CMD	CASSETTE UNIT MOTOR DRIVE command
CPD	CASSETTE PAPER DETECTION signal
CRDOP	CASSETTE RIGHT DOOR OPEN signal
CS	CASSETTE SIZE DETECTION command
CS2	CASSETTE2 SIZE DETECTION command
CS3	CASSETTE3 SIZE DETECTION command
CSZ-1	CASSETTE SIZE signal 1
CSZ-2	CASSETTE SIZE signal 2
CSZ-3	CASSETTE SIZE signal 3
CSZ-4	CASSETTE SIZE signal 4
DPD	DELIVERY PAPER DETECTION signal
EHTRL	EARTH RL DRIVE command RL2
FFA	FUSER FILM MOTOR PULSE command A
FFA*	FUSER FILM MOTOR PULSE command A*
FFB	FUSER FILM MOTOR PULSE command B
FFB*	FUSER FILM MOTOR PULSE command
FFCA	FUSER FILM MOTOR VOLTAGE command A
FFCB	FUSER FILM MOTOR VOLTAGE command B
FFD	FIXING FILM POSITION signal
FLHT OFF	FLUORESCENT LAMP HETER OFF command
FL ON	FLUORESCENT LAMP ON command
FLPRHT	FLUORESCENT LAMP PRE-HEAT command
FLS	FLUORESCENT LAMP INTENSITY signal
FLTH	FLUORESCENT LAMP THERMISTOR signal
FLTH ON	FLUORESCENT LAMP HETER ON command
FMD	FUSER FILM MOTOR DRIVE command
HEFD	HEAT EXHAUST FAN DRIVE command
HTNG	FUSER HEATER NG signal
HTRD	HEATER DRIVE command
JCTL	DISCHARGE BIAS DRIVE command
JLVCTL	DISCHARGE BIAS CHANGE command
LHP	LENS HOME POSITION signal
LID	LIGHT INTENSITY signal
LNSA	LENS MOTOR PULSE command A
LNSA*	LENS MOTOR PULSE command A*
LNSB	LENS MOTOR PULSE command B
LNSB*	LENS MOTOR PULSE command B*
LNSC-A	LENS MOTOR DRIVE command A
LNSC-B	LENS MOTOR DRIVE command B
MFPD	MULTIFEEDER PAPER DETECTION signal
MFPUCLD	MULTIFEEDER PICK-UP CLUTCH DRIVE command
MFPWD	MULTIFEEDER PAPER WIDTH DETECTION signal
MFSLD	MULTIFEEDER SOLENOID DRIVE command
MLOCK	MAIN MOTER LOCK signal
MMCLK	MAIN MOTOR CLOCK signal
MMD	MAIN MOTER DRIVE command
MPWM	MAIN PULSE command
PCLSLD	PRIMARY CORONA ROLLER CLEANING SOLENOID command
PDCPWM	PRIMARY CORONA DETECT PULSE command
PDCS	PRIMARY CORONA DETECT command
PEXP	PRE-EXPOSURE LAMP LIT command
PUCLD	PICK-UP CLUTCH DRIVE command
PWSW	POWER SWITCH command
RDOP	RIGHT DOOR OPEN signal
RGCLD	REGISTRATION CLUTCH DRIVE command
RPD	REGISTRATION PAPER DETECTION signal
SC-A	SCANNER MOTOR PULSE command A
SC-A*	SCANNER MOTOR PULSE command A*
SC-B	SCANNER MOTOR PULSE command B
SC-B*	SCANNER MOTOR PULSE command B*
SC-COMA	SCANNER MOTOR DRIVE command A
SC-COMB	SCANNER MOTOR DRIVE command B
SCHP	SCANNE HOME POSITION signal
SPD	SEPARATION PAPER DETECTION signal
SRSW	SERVICE MODE SWITCH signal
TCNTD	TOTAL COUNTER DRIVE command
TEP	TONER EMPTY signal
TFWON	TRNSFER BIAS ON/OFF command
TFWPWM	TRNSFER BIAS LOW VOLTAGE signal
TFWS	TRNSFER BIAS PULSE command
TH 1	FIXING MAIN THERMISTOR signal
TH 2	FIXING SUB THERMISTOR signal
TREVON	TRNSFER REVERSE ON command

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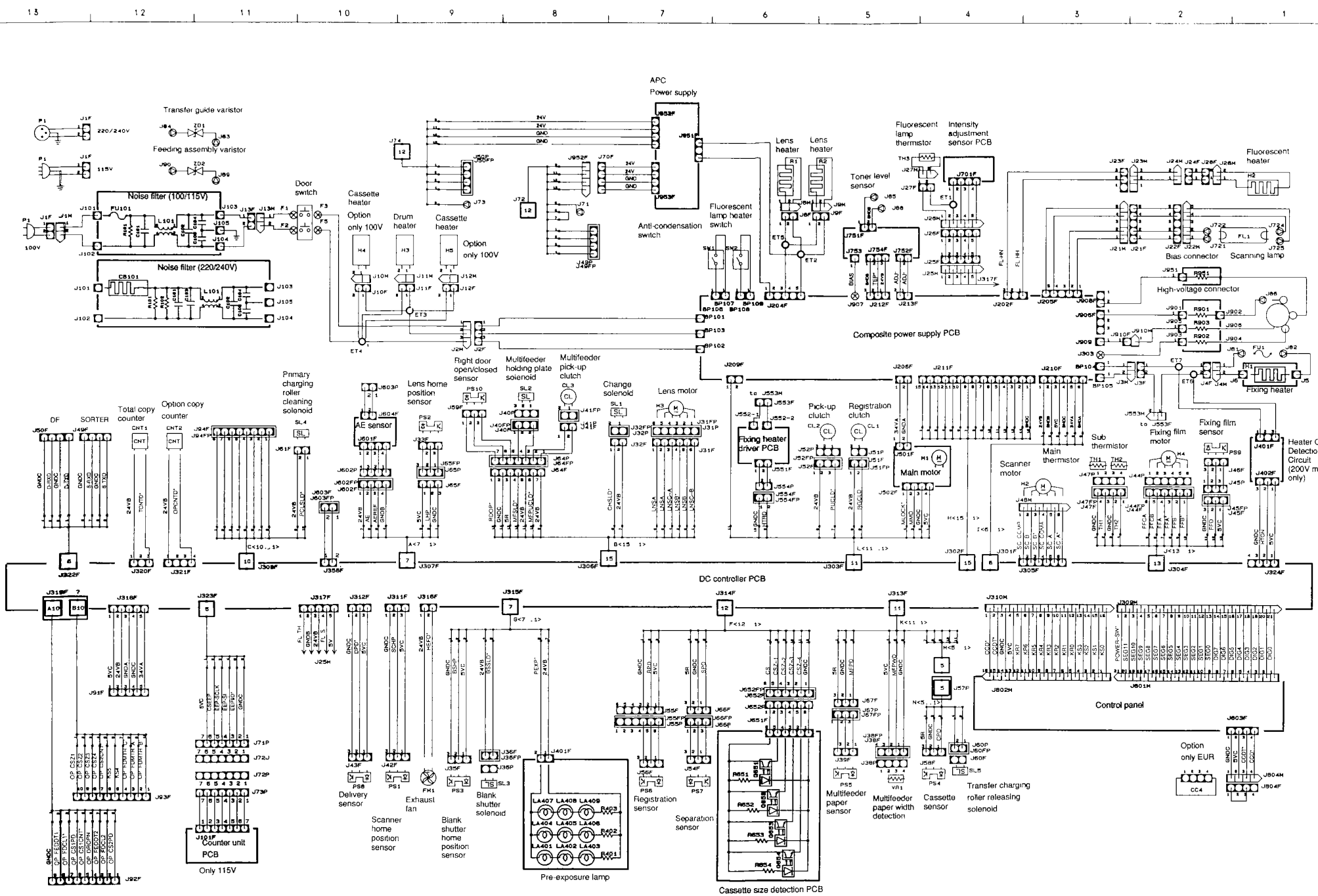
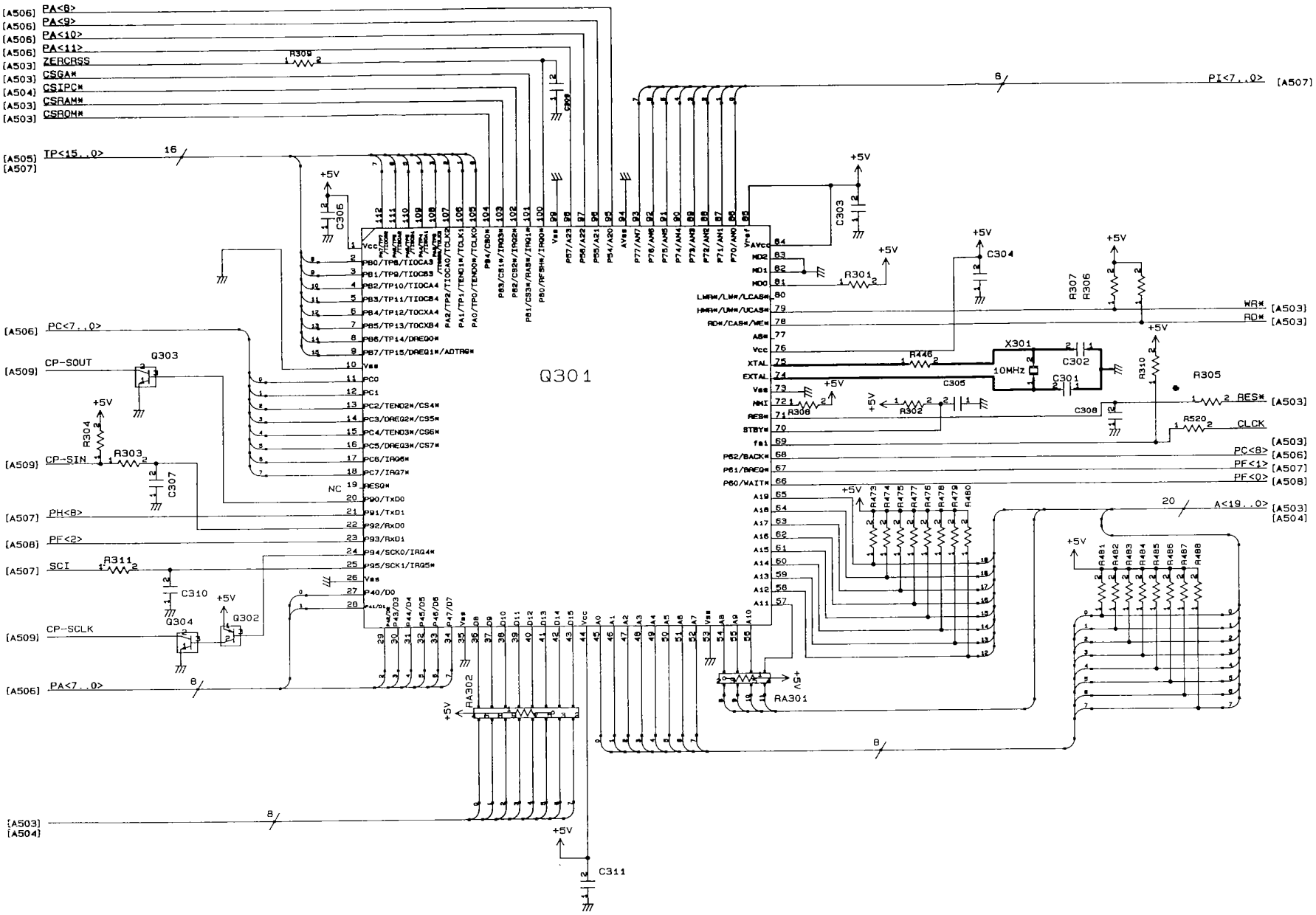

Transfer guide varistor
Feeding assembly varistor
220/240V
115V
Noise filter (100/115V)
Noise filter (220/240V)
Door switch
Cassette heater
Option only 100V
Drum heater
Cassette heater
Option only 100V
APC Power supply
Anti-condensation switch
Fluorescent lamp heater switch
Lens heater
Lens heater
Toner level sensor
Fluorescent lamp thermistor
Intensity adjustment sensor PCB
Fluorescent heater
Bias connector
Scanning lamp
High-voltage connector
Composite power supply PCB
Fixing heater
Heater ON Detection Circuit (200V model only)
Primary charging roller cleaning solenoid
Right door open/closed sensor
Multifeeder holding plate solenoid
Multifeeder pick-up clutch
Change solenoid
Lens motor
Lens home position sensor
AE sensor
DF
SORTER
Total copy counter
Option copy counter
Fixing heater driver PCB
Pick-up clutch
Registration clutch
Main motor
Main thermistor
Sub thermistor
Scanner motor
Fixing film motor
Fixing film sensor
DC controller PCB
Control panel
Option only EUR
Counter unit PCB
Only 115V
Delivery sensor
Scanner home position sensor
Exhaust fan
Blank shutter home position sensor
Blank shutter solenoid
Pre-exposure lamp
Registration sensor
Separation sensor
Cassette size detection PCB
Multifeeder paper sensor
Multifeeder paper width detection
Cassette sensor
Transfer charging roller releasing solenoid



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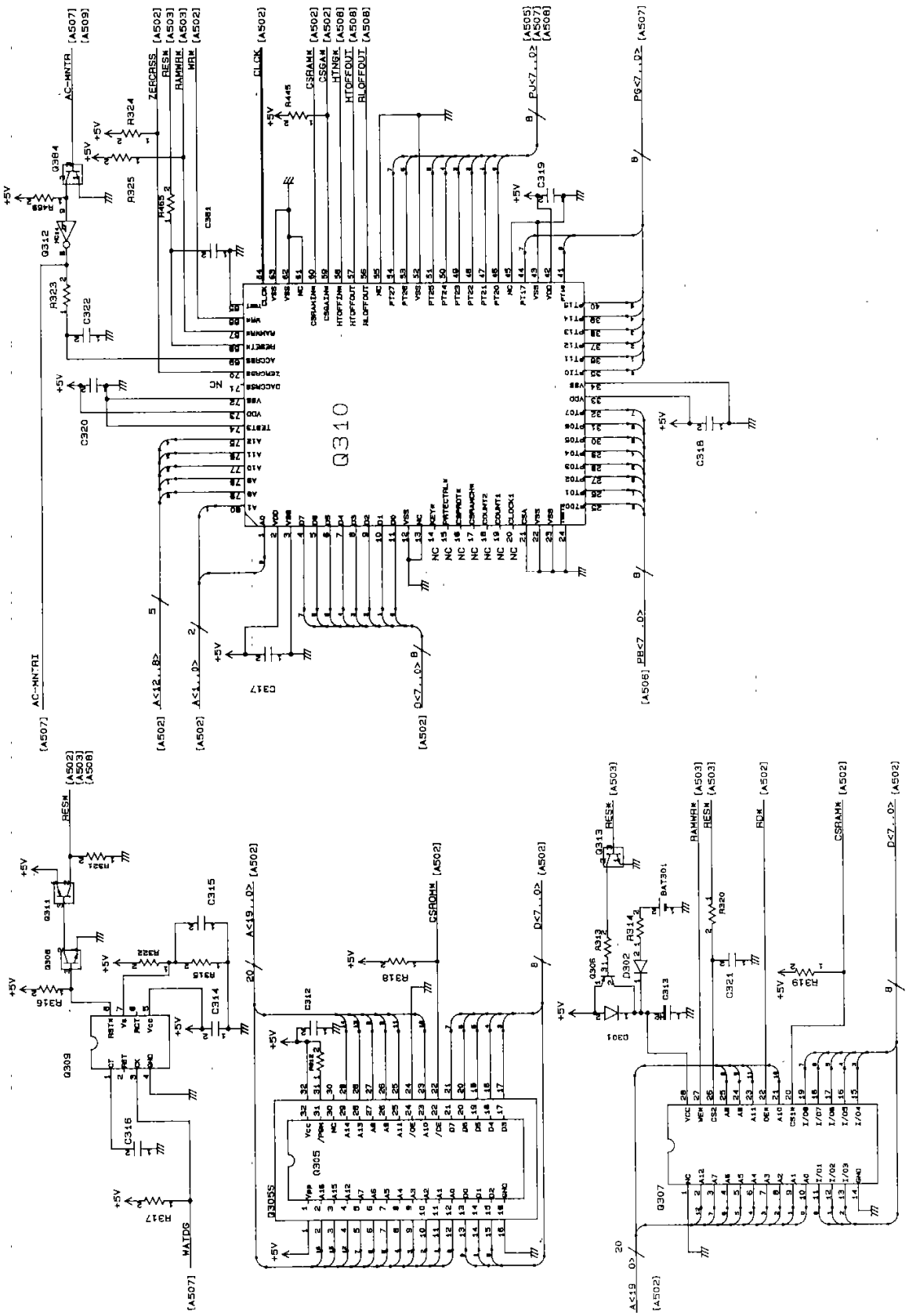
DC Controller (A503) (2/8)



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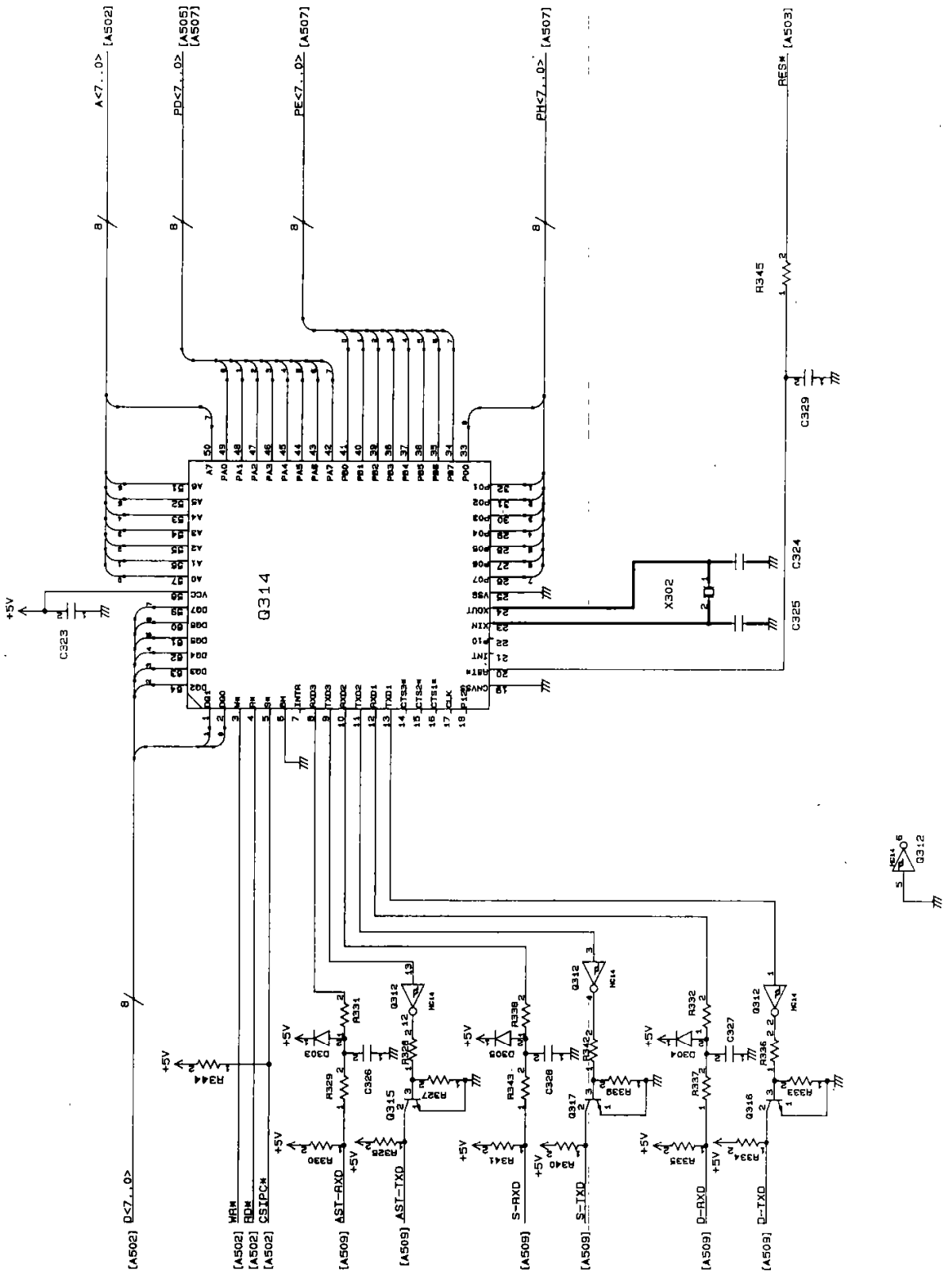
DC Controller (A504) (3/8)



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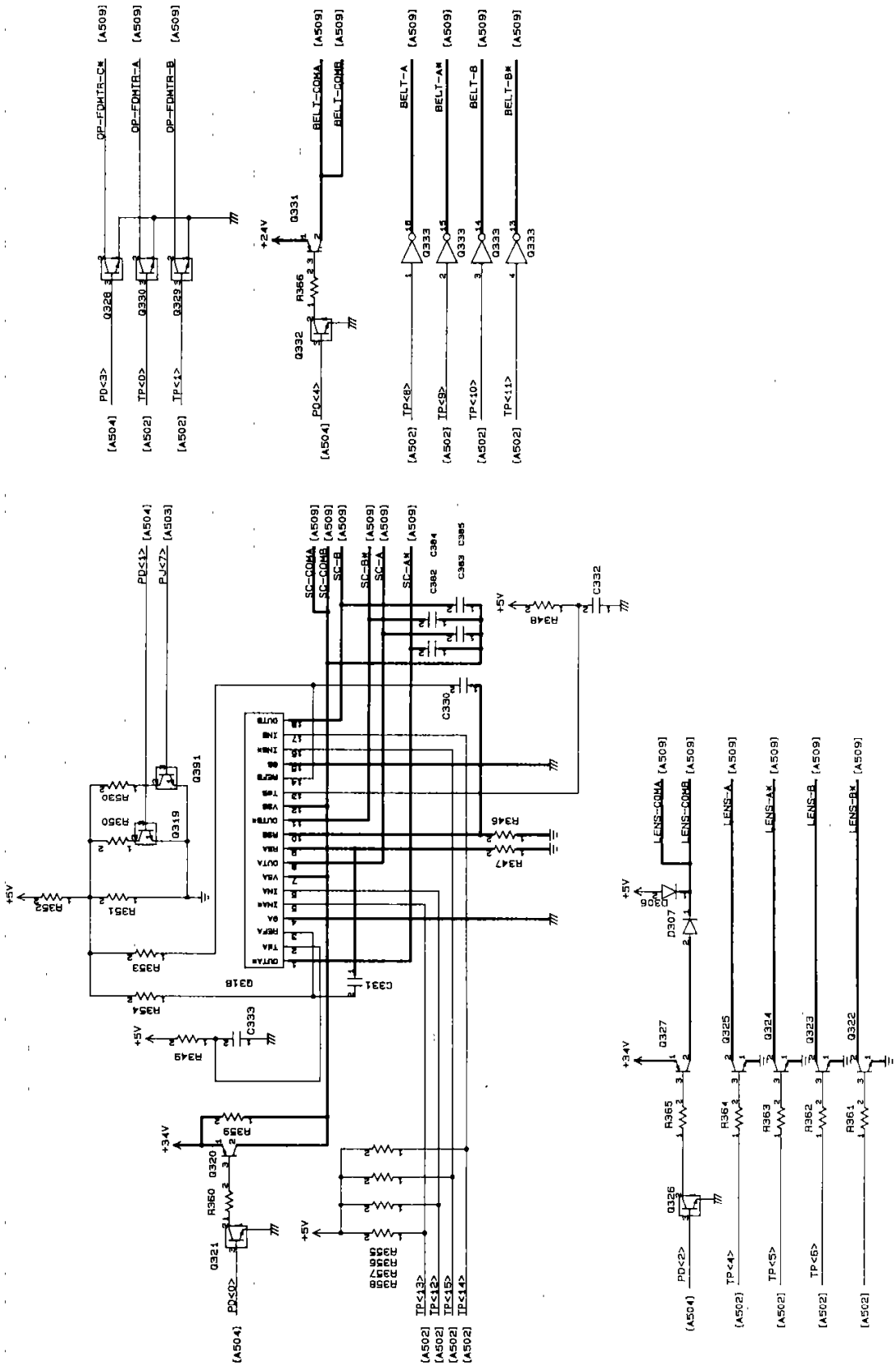
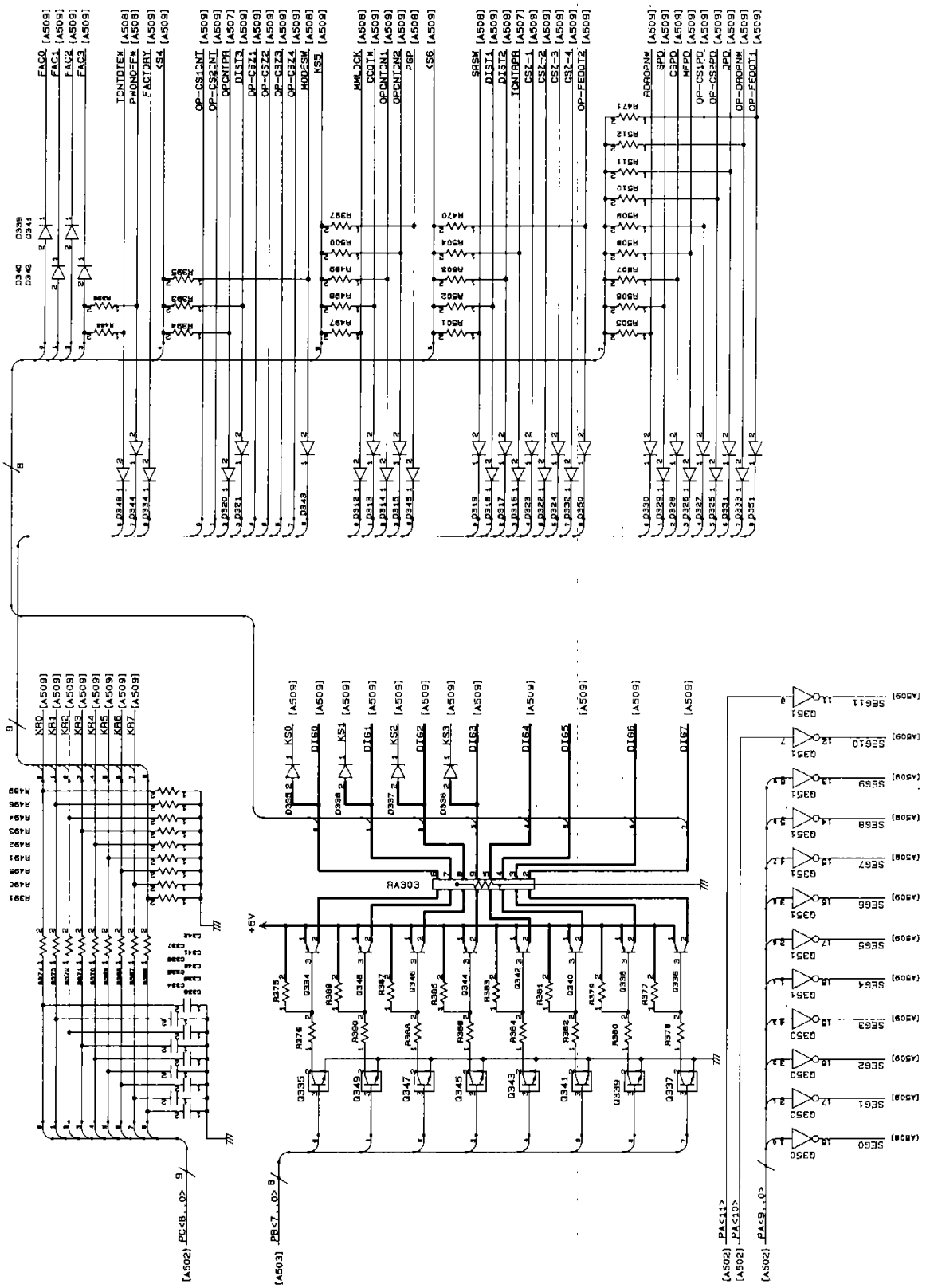
DC Controller (A505) (4/8)



DC Controller (A506) (5/8)



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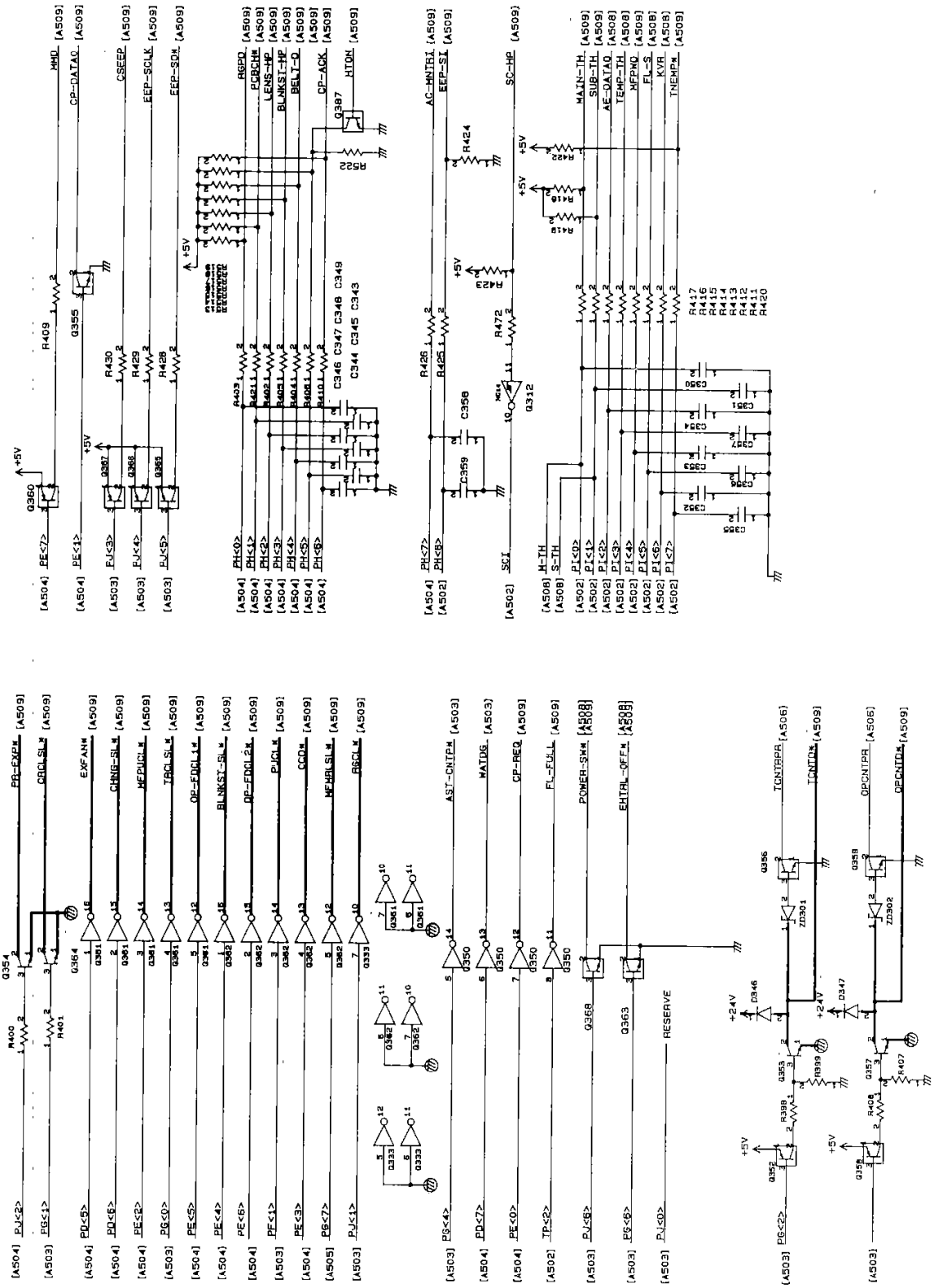
DC Controller (A507) (6/8)



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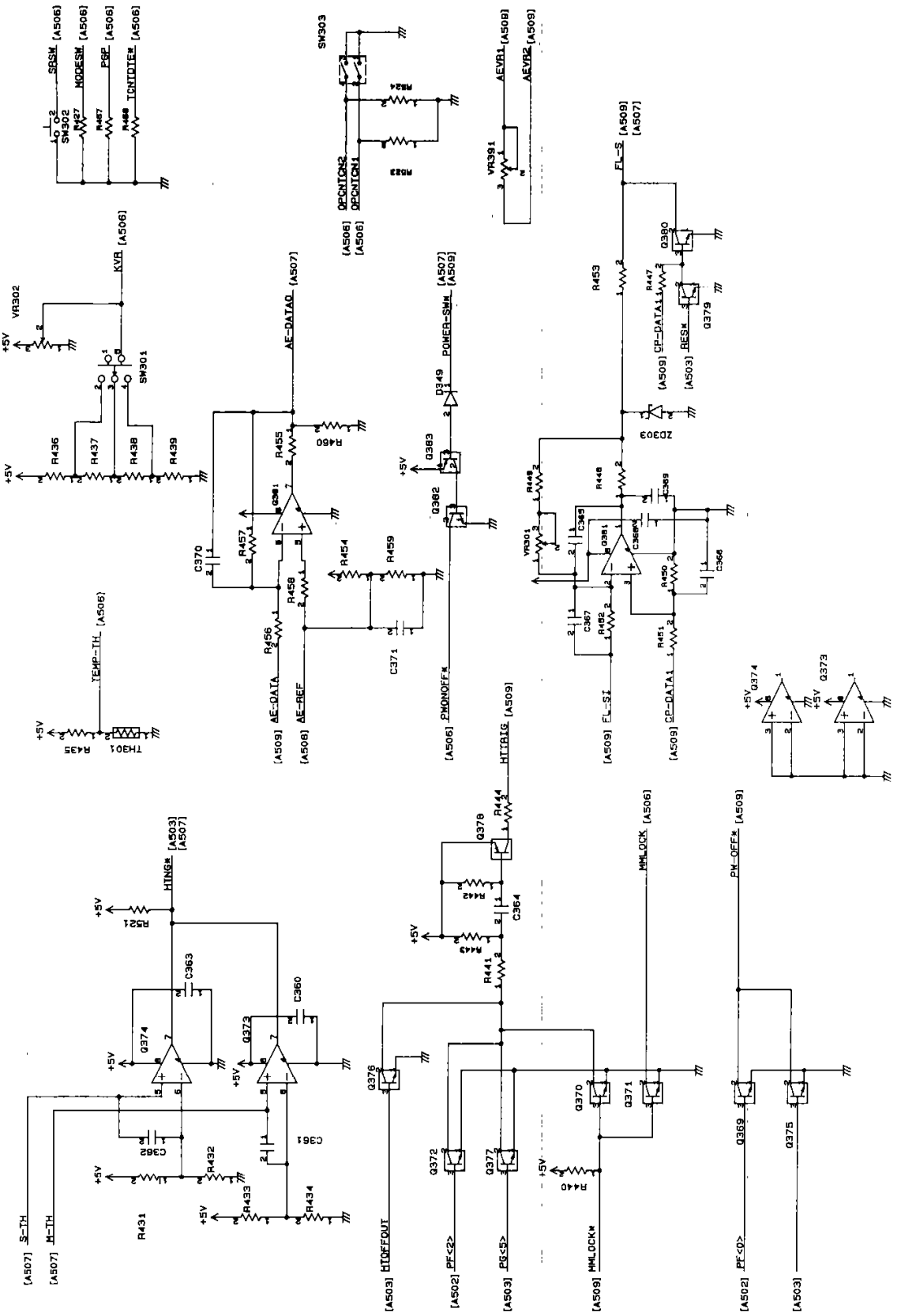
DC Controller (A508) (7/8)



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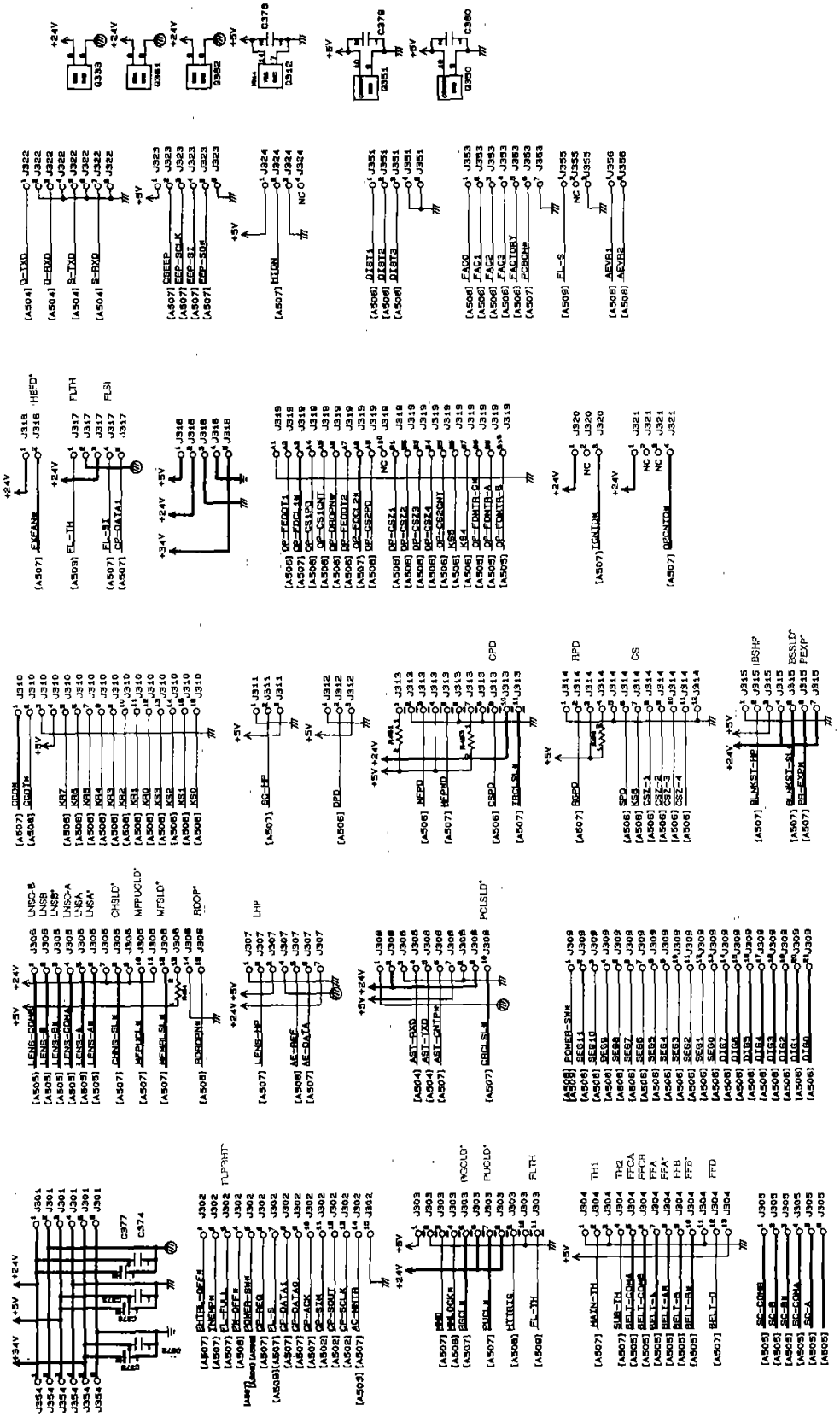
DC Controller (A509) (8/8)



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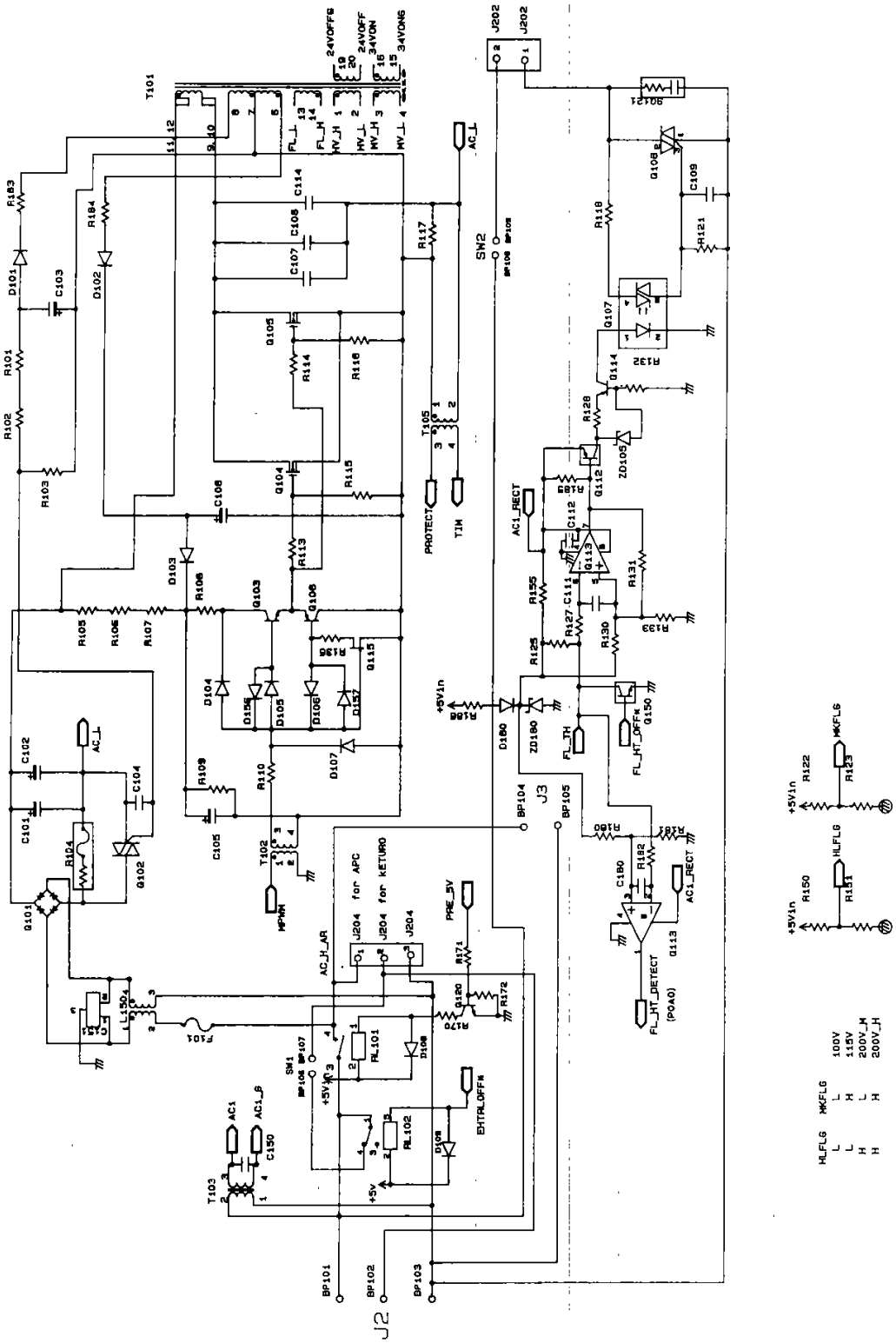
E. COMPOSITE POWER SUPPLY CIRCUIT DIAGRAM

Composite Power Supply PCB (1/5)



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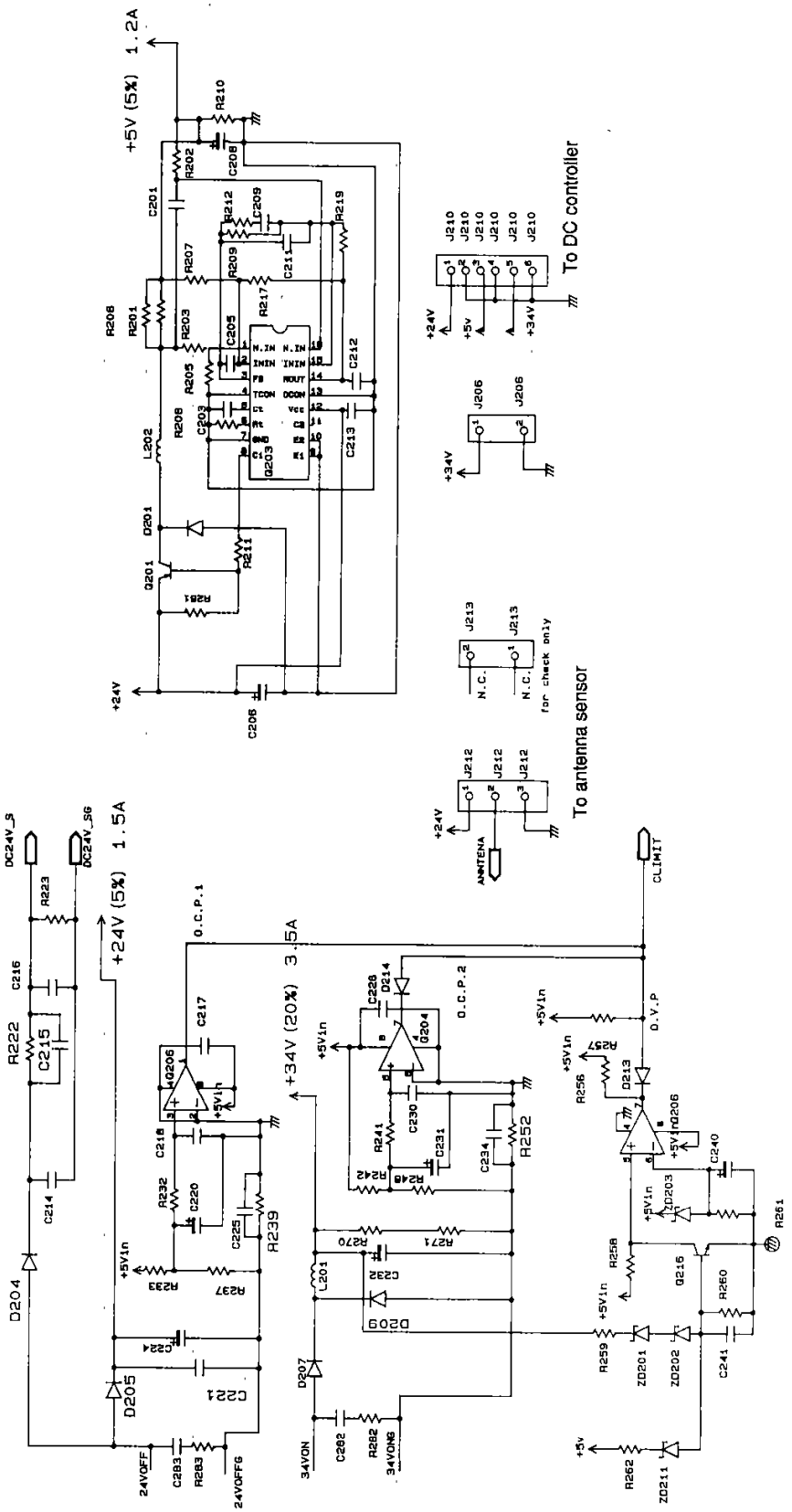
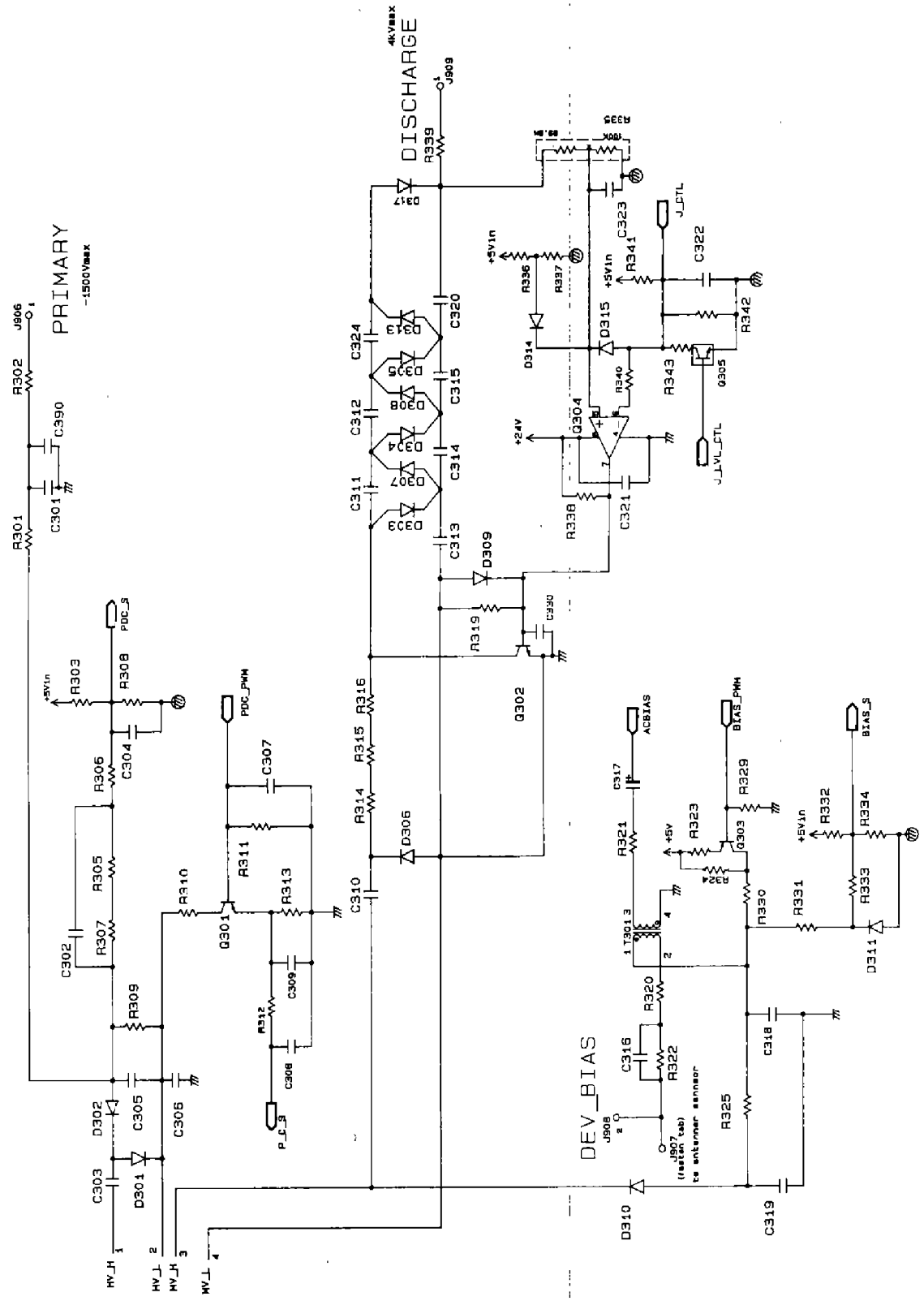
Composite Power Supply PCB (2/5)



Composite Power Supply PCB (3/5)



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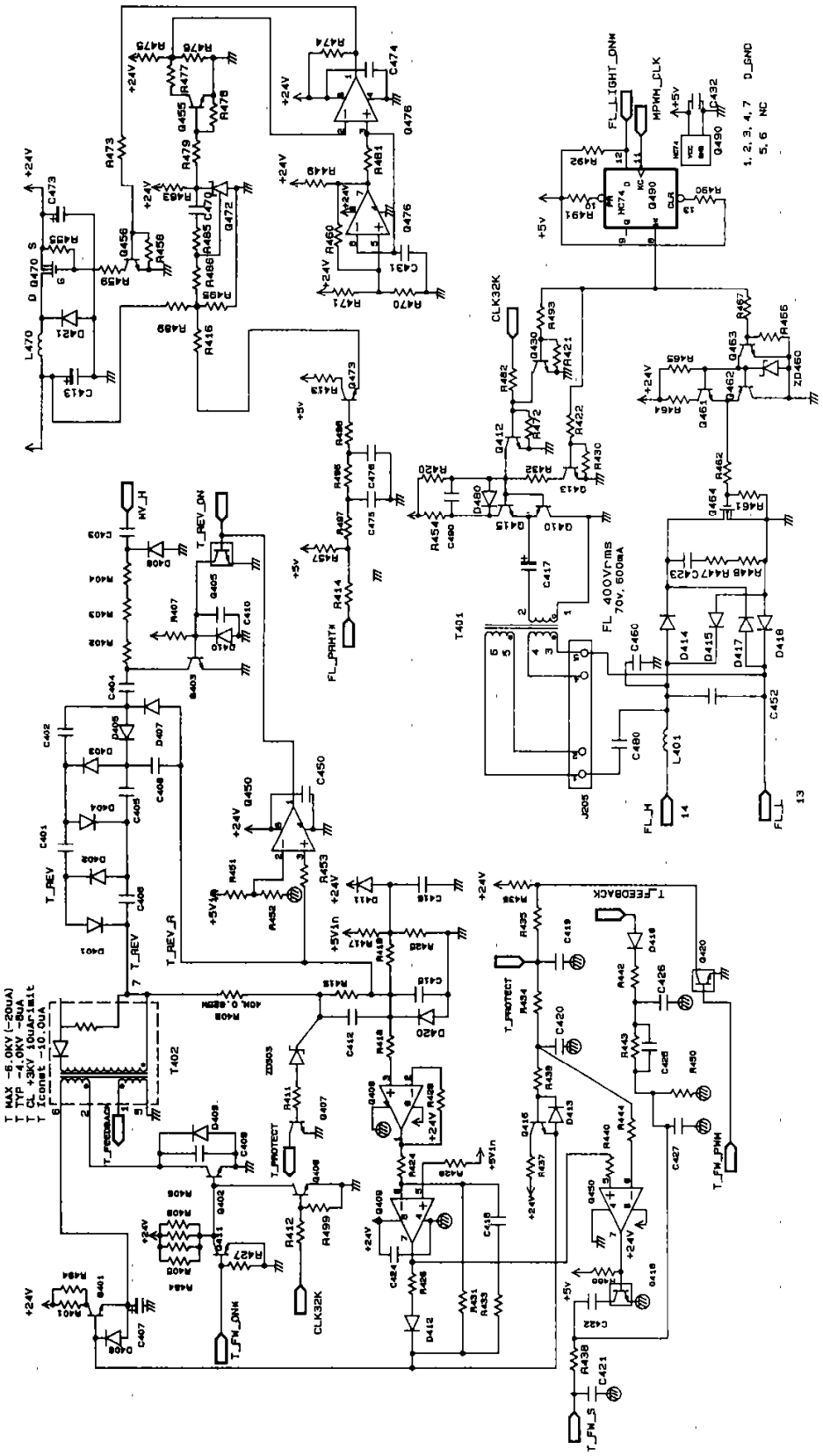
Composite Power Supply PCB (4/5)



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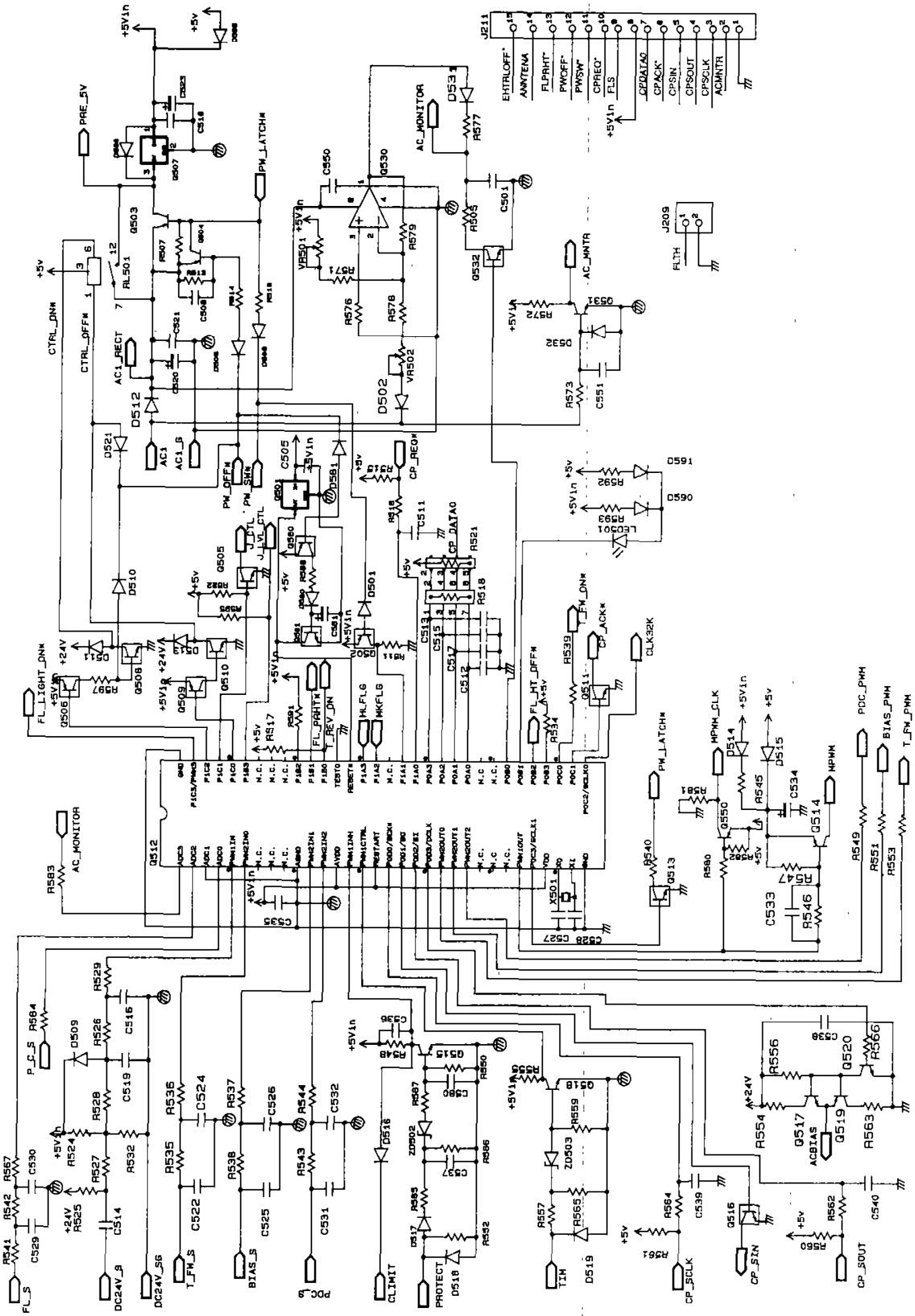
Composite Power Supply PC



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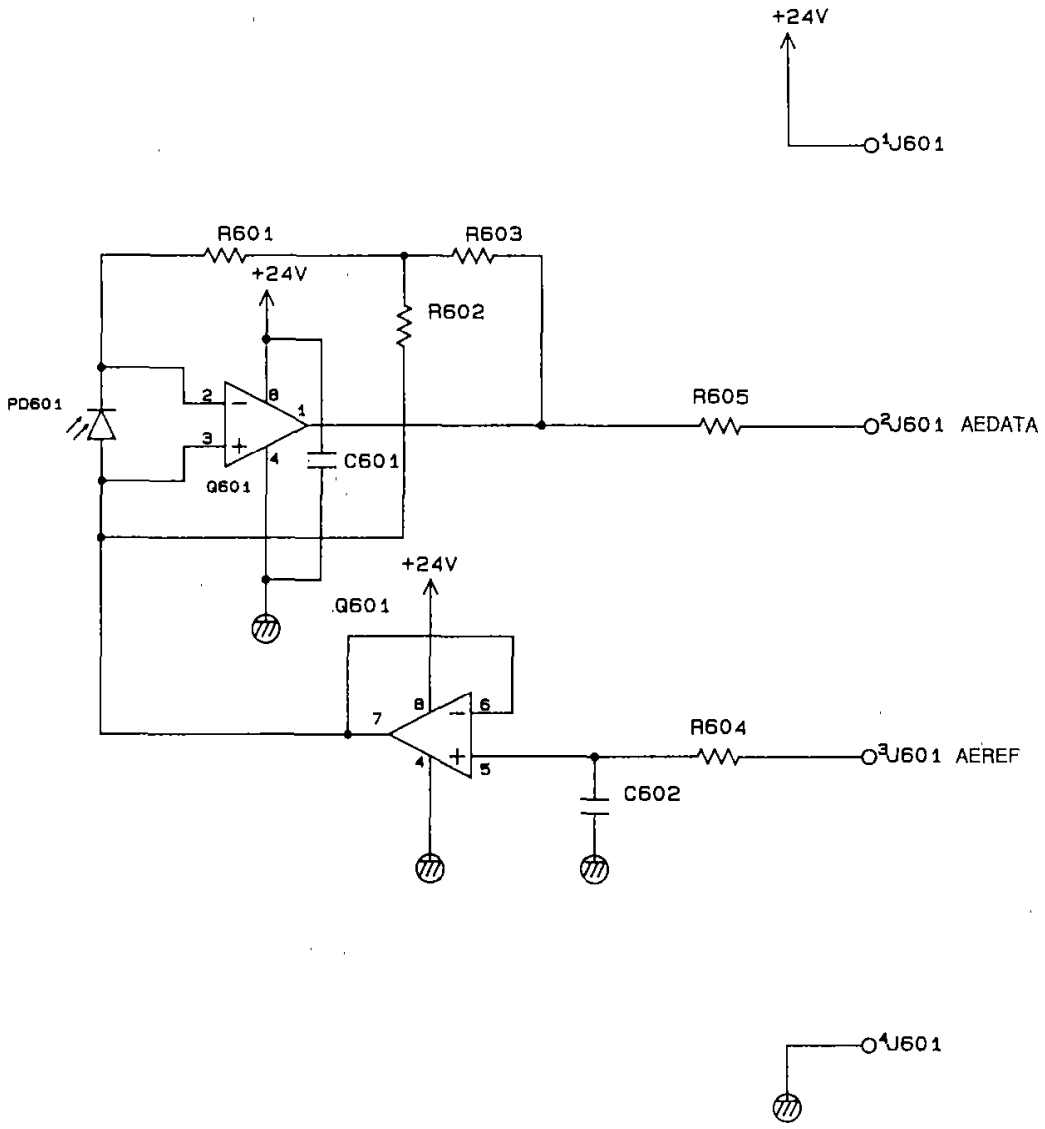
F. AE SENSOR CIRCUIT DIAGRAM



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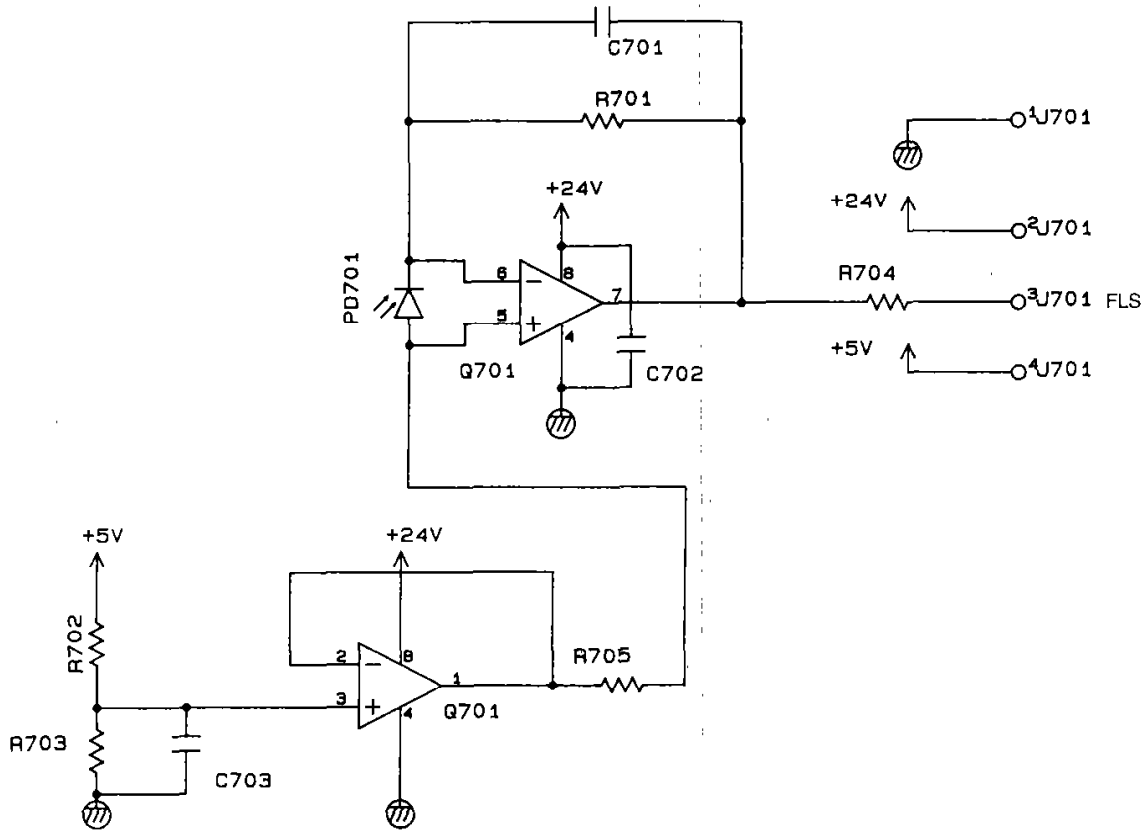
G. INTENSITY SENSOR CIRCUIT DIAGRAM



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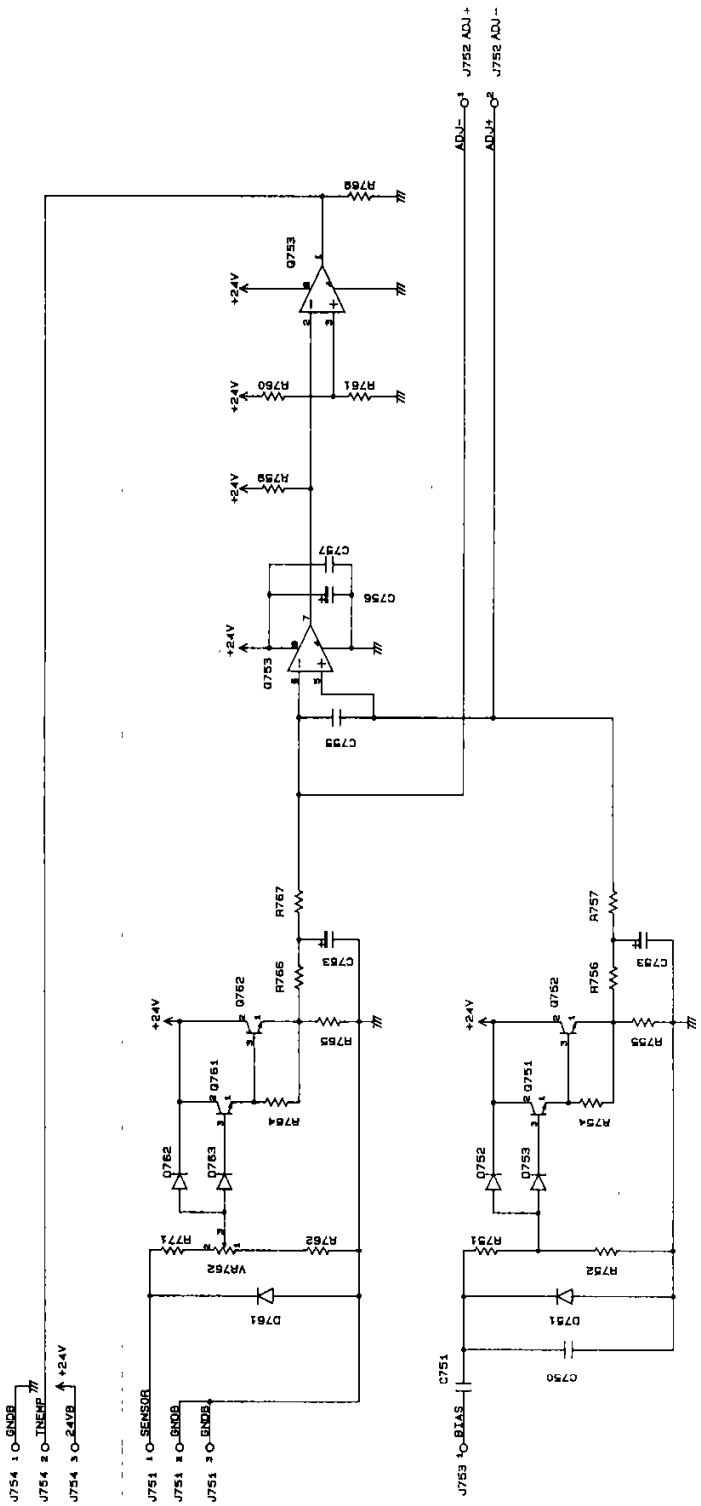
H. TONER LEVEL DETECTION CIRCUIT DIAGRAM



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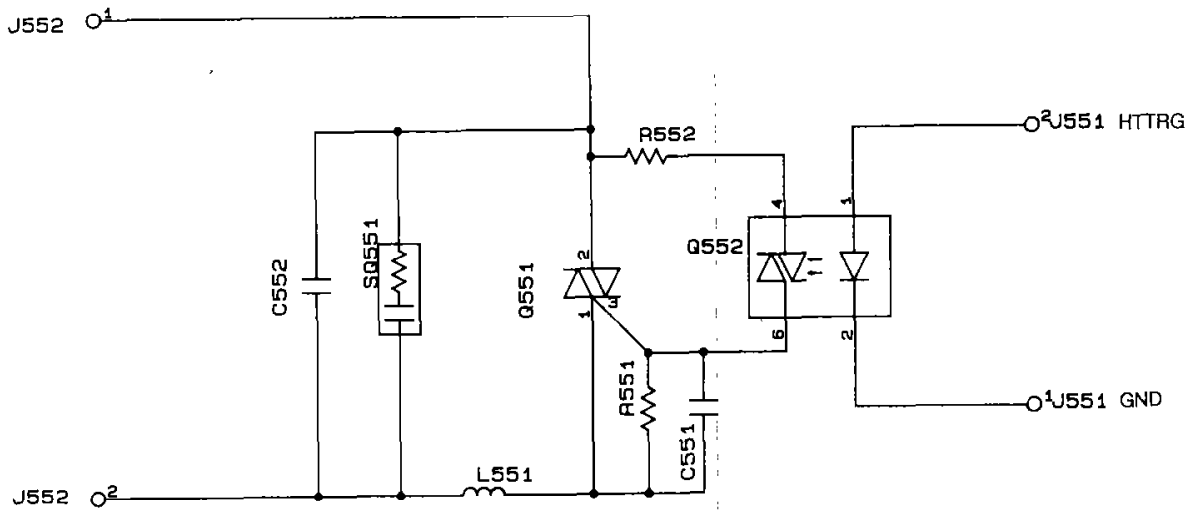
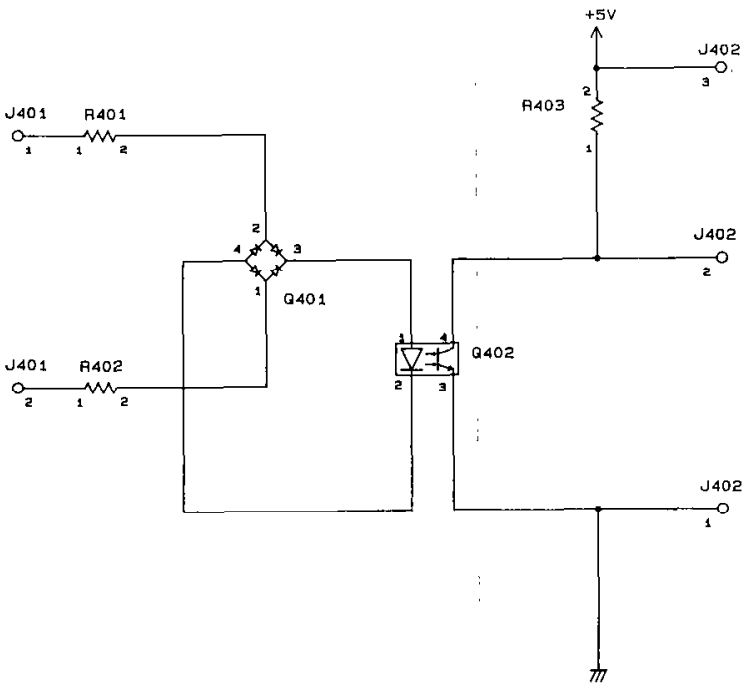
I. FIXING DRIVER CIRCUIT DIAGRAM



J. HEATER ON DETECTION CIRCUIT (200V MODEL ONLY)



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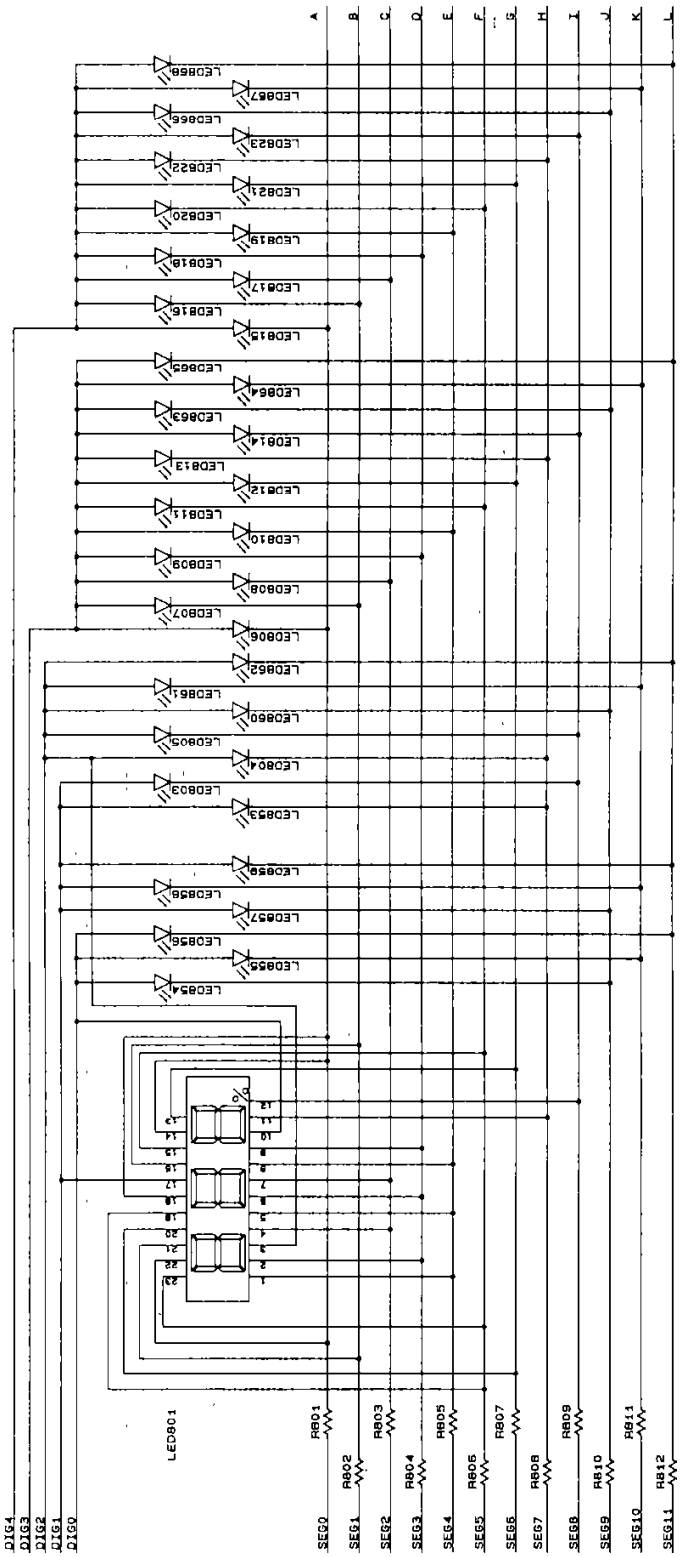
K. CONTROL PANEL CIRCUIT DIAGRAM

Control Panel (1/3)



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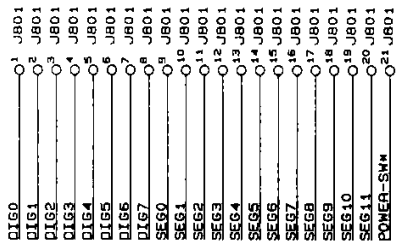
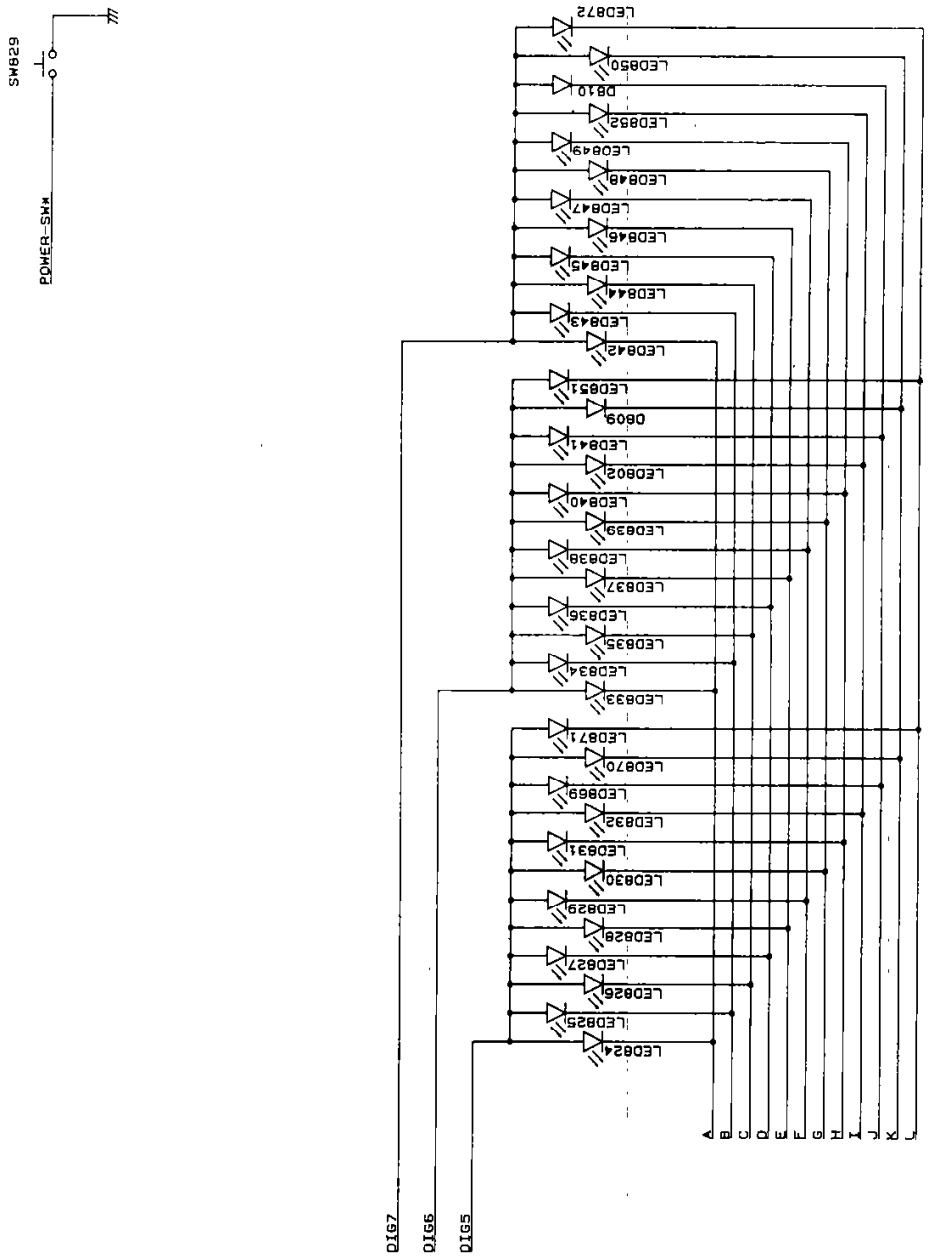
Control Panel (2/3)





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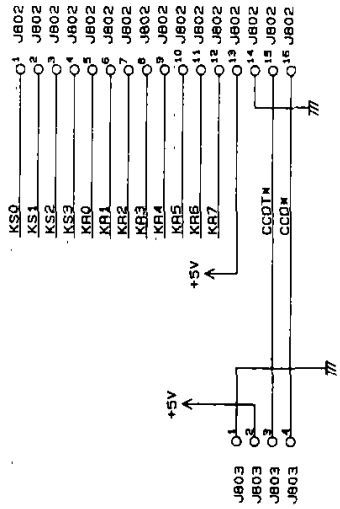
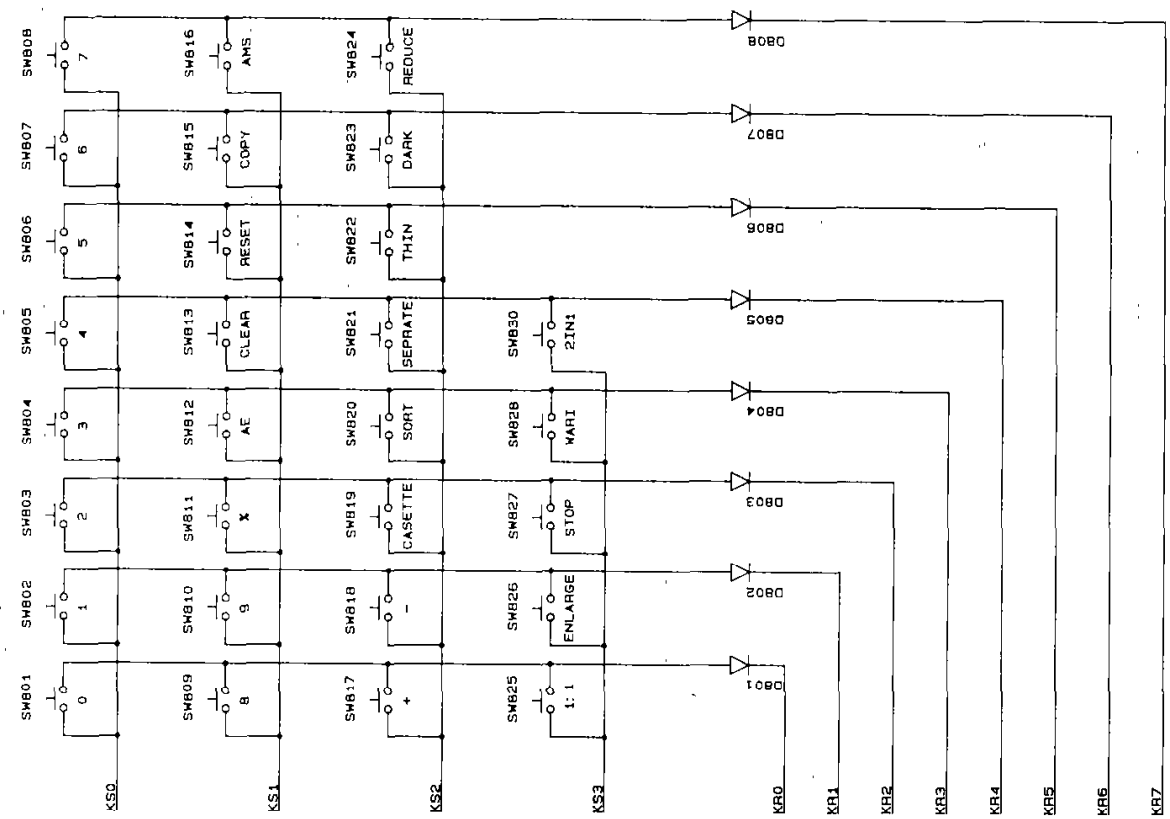
Control Panel (3/3)





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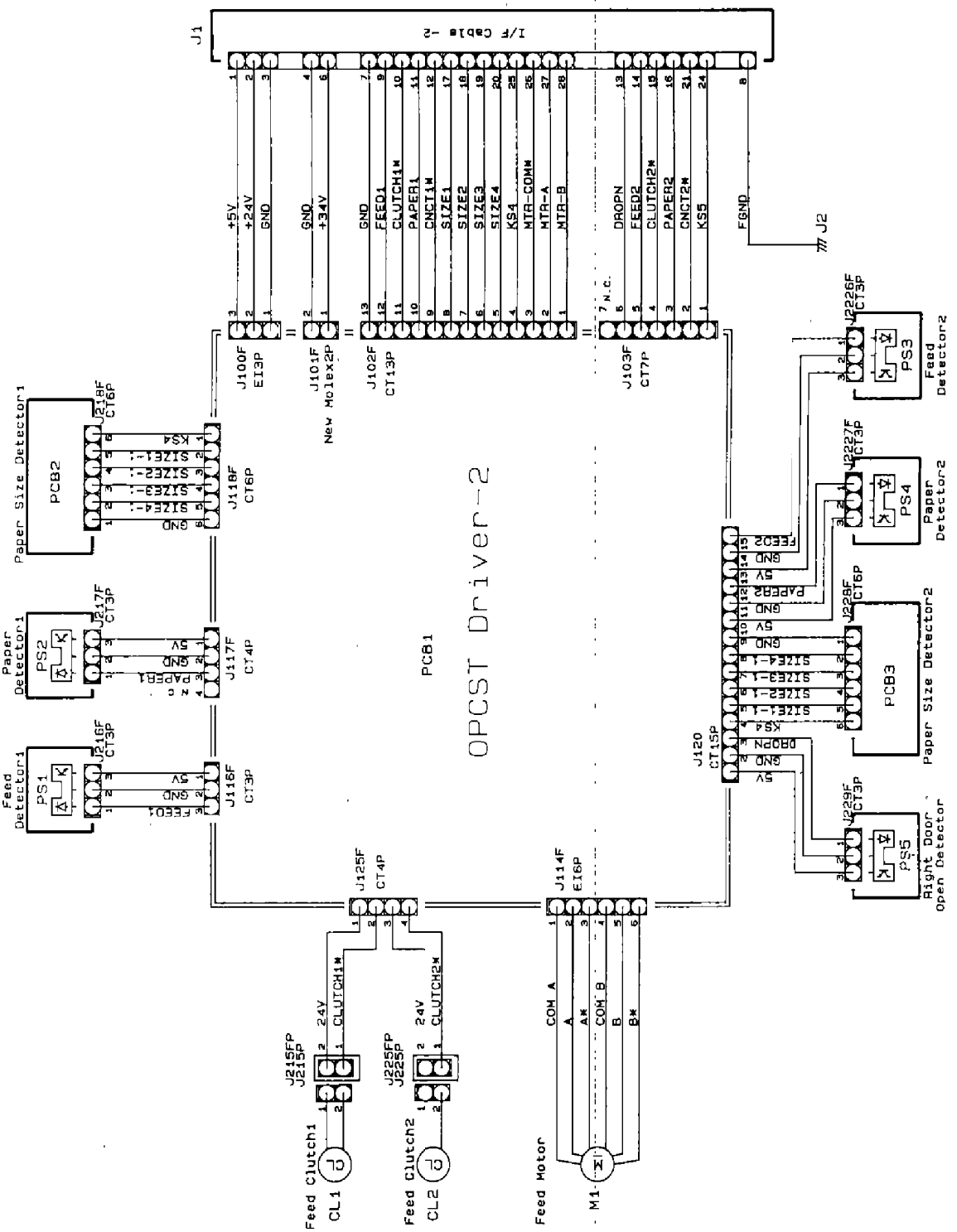
L. CASSETTE FEEDING MODULE-B1 GENERAL CIRCUIT DIAGRAM



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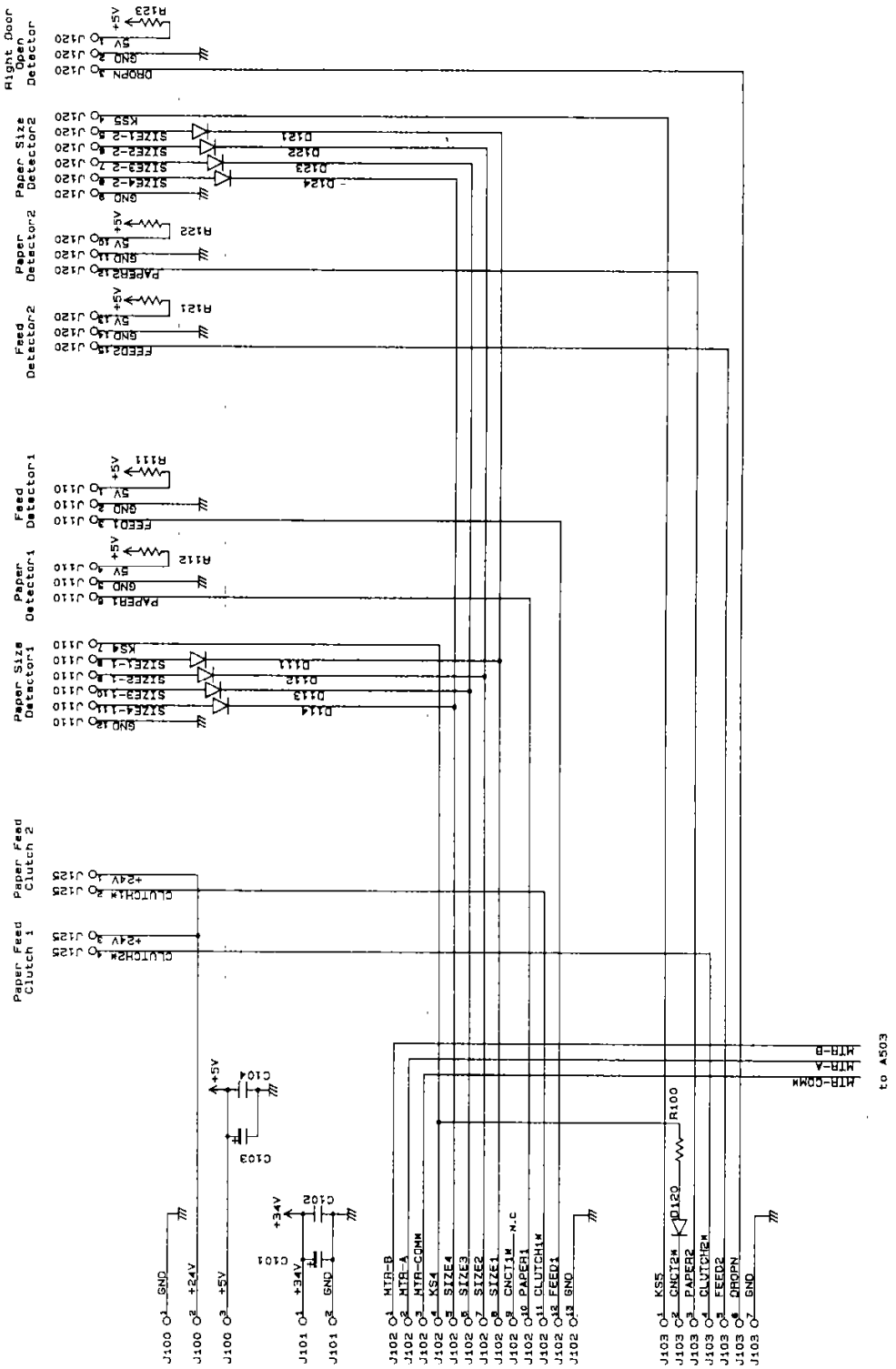
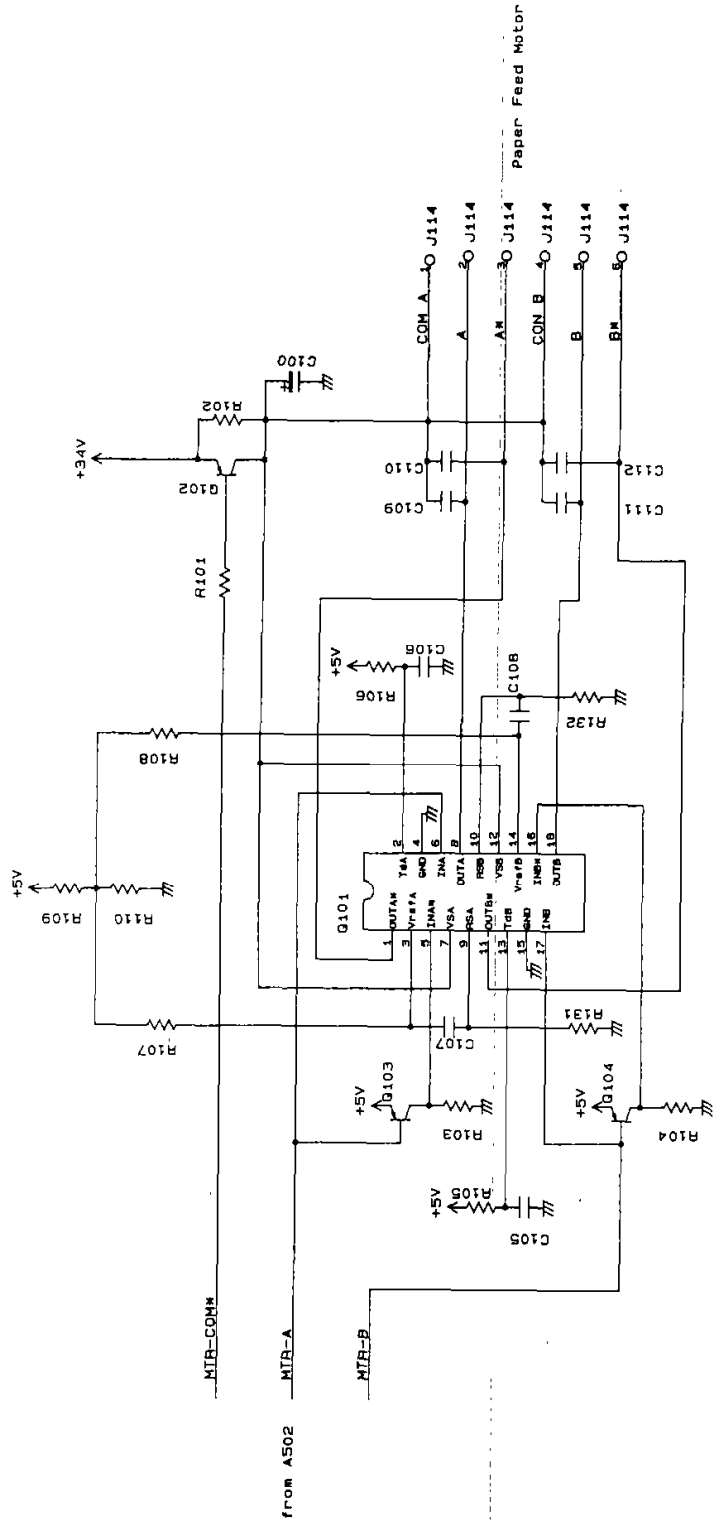
M. CASSETTE FEEDING MODULE-B1

Driver Circuit Diagram (1/2)



Driver Circuit Diagram (2/2)



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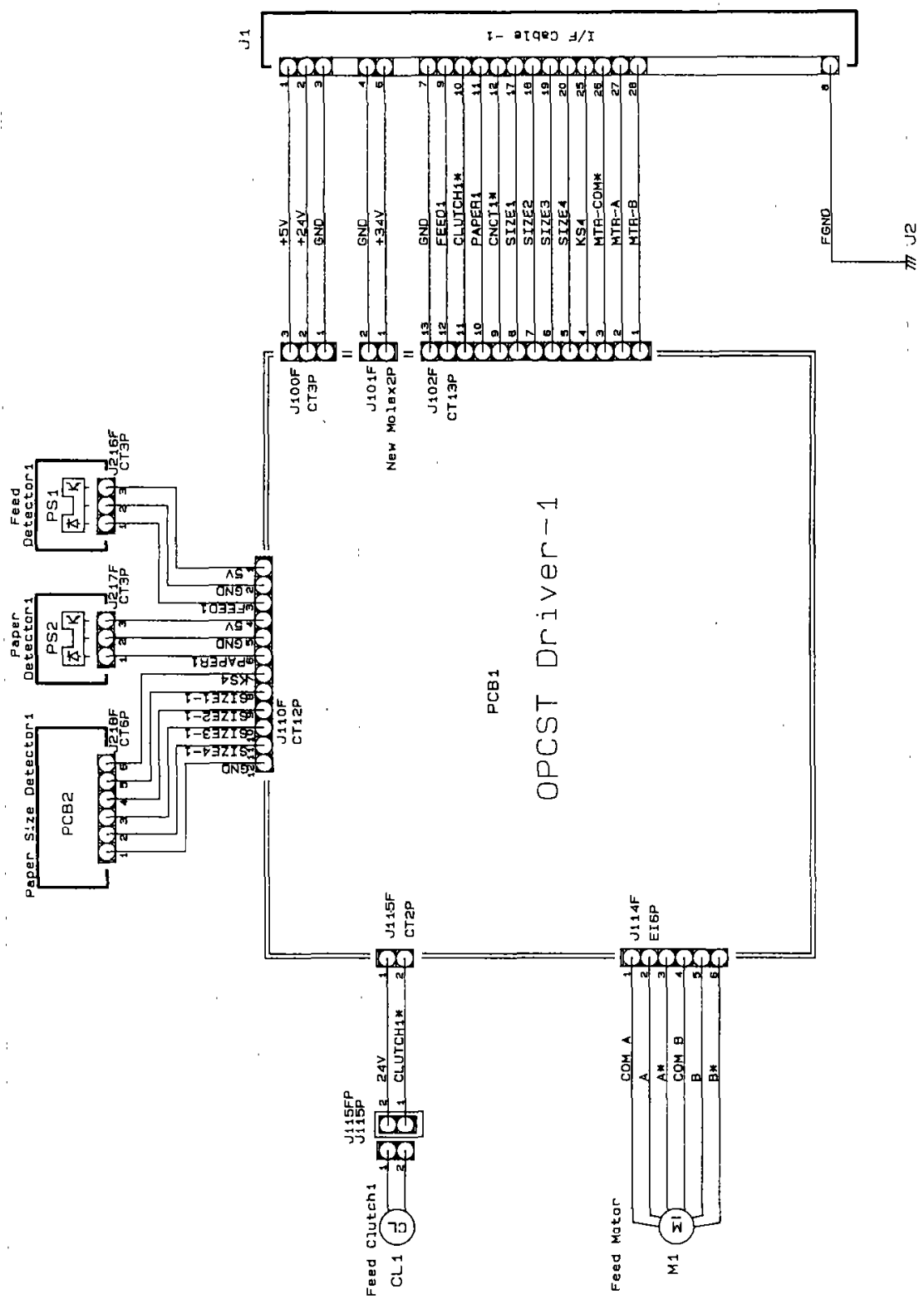
N. CASSETTE FEEDING MODULE-A1 GENERAL CIRCUIT DIAGRAM



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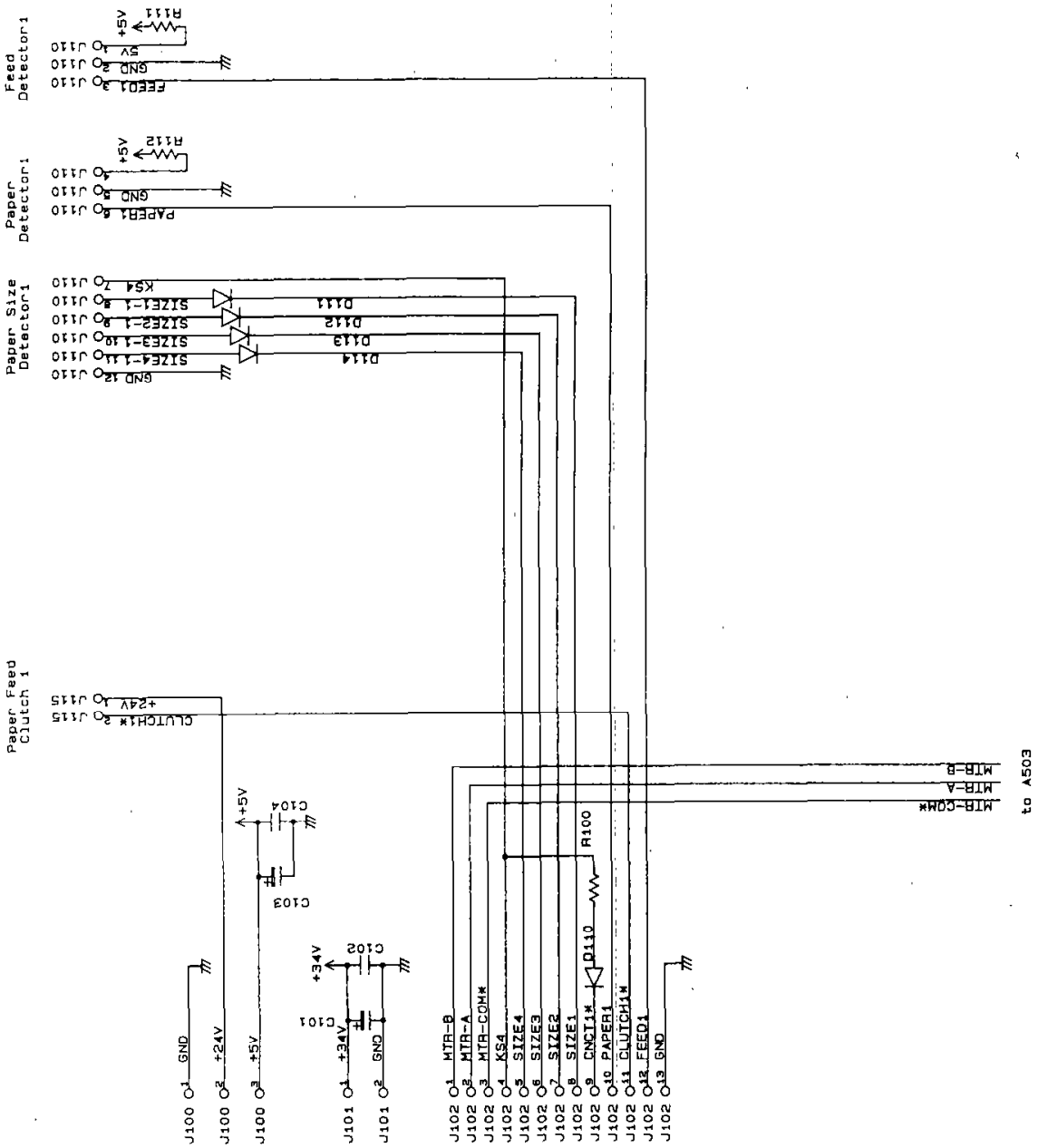
O. CASSETTE FEEDING MODULE-A1

Driver Circuit Diagram (1/2)



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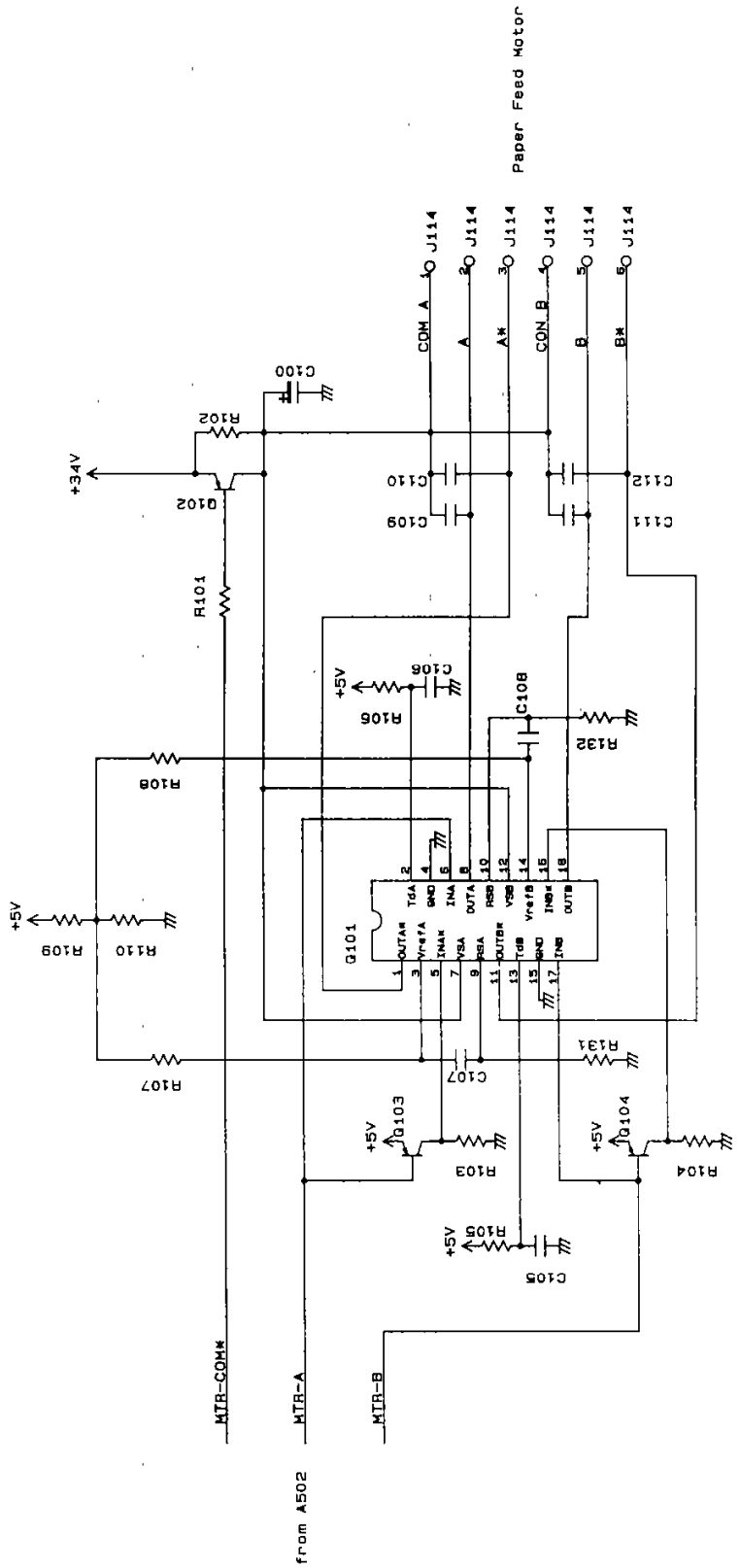
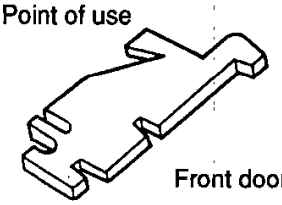
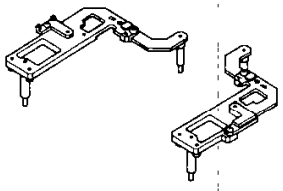
Driver Circuit Diagram (2/2)



P. SPECIAL TOOLS

See the table for the special tools used to service the machine in addition to the standard tools set.

No.	Tool name	Tool No.	Shape	Rank	Remarks
1	Door switch actuator	TKN-0093-000	Point of use  Front door	A	
2	Mirror positioning tool (comes in pairs; front, rear)	FY9-3009-000		B	For adjusting the distance between No. 1 and No. 2 mirrors.
3	Pulley clip	FY9-3010-000		B	For fixing the scanning cable in place.

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Q. SOLVENTS/OILS

No.	Name	Use	Composition	Description
1	Ethl alcohol (Ethanol) Isopropyl alcohol (Isopropanol)	Cleaning: copyboard glass, mirror, etc.	$C_2 H_5 OH$ $(CHZ_3)_2 CHOH$	• Flammable. • Use in a well ventilated area. • Avoid breathing concentrated vapor.
2	MEK	Removing toner or oil stains	$CH_3 \cdot CO \cdot C_2H_5$ Methylethyl ketone	• Flammable. • Use in a well-ventilated area and avoid breathing concentrated vapor. • Avoid contact with eyes or skin. • Do not use for cleaning the drum, plastic molded parts, or corona wires.
3	Heat-resistant grease	Lubricating the drive mechanisms; e.g., copyboard driving gear, fixing drive gear, fixing ass'y, etc.		Tool No.: CK-0427 (500g can) (Equivqlent grease can be used, but should be able to withstand 200°C for extended periods of time.)
4	Lubricating oil (low viscosity)	Lubrication points: Scanner rail, etc.	ISO VG 68 oil ESSO Febis K68 MOBIL Vactraoil No. 2 SHELL Tonna oil T68	Equivalent oil can be used. Tool No.: CK-0451 (100cc)
5	Lubricating oil (low viscosity)	Lubrication point: oneway clutch in pick-up control assembly	ISO VG 220 oil ESSO Febis K220 MOBIL Vactraoil No. 4	Equivalent oil can be used. Tool No.: CK-0524 (100cc).
6	Lubricating oil	Lubrication point: friction parts	Silicone oil	Tool No.: CK-0551 (20g)

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CANON NP-6216

MODEL

SERVICE MANUAL

Canon **SERVICE BULLETIN** **COPIER**

Issued by Canon Europa N.V.

MODEL: NP6216

No.: 1550-006 Rev. 1
(D6-12E-035-1)
DATE: 13.06.97

☐ Major quality issues ☐ Quality upgrade/production efficiency
☐ Field quality problems ■ Miscellaneous

SUBJECT: DIFFERENCES BETWEEN THE NP1550 AND NP6216

Outline

Accompanying the marketing of the NP6216, notification is made here of differences between the NP6216 and the NP1550.
This content will be incorporated into the next revision of the NP1550 Service Manual (FY8-13BN-010), Service Hand Book (FY8-2380-010) and Parts Catalog (FY8-31AS-010).

Details

1) The major differences between the NP1550 and NP6216 are listed below.
   - Accessory change
     The Stapler Sorter has been changed from the Stapler Sorter-B1 to the Stapler Sorter-D2. Other accessories are unchanged.
   - Modification to shape and color of external cover
   - Change in Control Card V attachment position
     The attachment position has been changed from the right side of the control panel to the left side. Connect the 4P connector cable to the extension cable and the 4P connector on the copier control panel.
   - Change in copy speed (see the table below)

Reduction ratio		Paper size	Cassette	Copies/min.
Direct		A3 (297 × 420 mm)	A3	9
		A4 (210 × 297 mm)	A4	16
		A4R (297 × 210 mm)	A4R	12
Reduction	I	50%	—	—
	II	A3 → A4	A4R	10
Enlargement	I	A4 → A3	A3	10
	II	200%	—	—

   - The auto shut off mode is available.
   - Serial number change
     NP6216 (230V UK) : F13-4451 QBE 00001 and later
     NP6216 (230V Europe) : F13-4491 UCC 00001 and later

2) Differences in Parts Catalog

[Changed parts]

Fig./Key no.	Part no. (OCI part no. is in parenthesis)		Q'ty	Part name
	NP1550	NP6216		
100-13	FG2-4181-00P	FG0-1216-00P (992990J)	1	DOOR, FRONT
100-13A	FC1-3552-00P	FA0-0658-00P (992959W)	1	LABEL, JAM BY-PASS
100-18	FA0-0186-00P	FA0-0671-00P (992961Q)	1	BLOCK, DOOR LOCK
100-13D	FC1-3550-00P	FA0-0678-00P (992986A)	1	LABEL, INSTRUCTION
325-	FG0-2987-01P	FG0-1213-00P (992885D)	1	MULTI FEED ASSEMBLY
325-1	FF2-5619-00P	FF0-0199-00P (992886E)	1	HANDLE
325-11	FF2-6702-00P	FF0-0198-00P (992887F)	1	COVER
325-9A	FC1-3553-00P	FA0-0654-00P (992892C)	1	LABEL
325-9	FF2-6700-00P	FF0-0197-00P (992894E)	1	GUIDE, PAPER
325-11A	FC1-3554-00P	FA0-0679-00P (992922H)	1	LABEL, PAPER SUPPLY
101-4	FC1-0928-00P	FA0-0648-00P (992984E)	1	MOUNT, MAIN SWITCH
101-12	FH0-0068-00P	FH7-6268-00P (992991F)	1	SWITCH, ROCKER
130-	FG2-2970-02P	FG0-1215-00P (992979S)	1	CONTROL PANEL ASSEMBLY
130-17	FC1-5384-00P	FA0-0680-00P (992966M)	1	FRAME, RESISTOR
130-10	FC1-1009-00P	FA0-0660-00P (992967N)	1	SUPPORT, CONTROL PANEL, LEFT
130-9	FC1-1008-01P	FA0-0661-00P (992968X)	1	SUPPORT, CONTROL PANEL, CENTER
130-8	FC1-1007-00P	FA0-0662-00P (992969Y)	1	SUPPORT, CONTROL PANEL, RIGHT
130-3	FC1-5373-00P	FA0-0664-00P (992970V)	1	COVER, CONTROL CARD
130-11	FC1-5375-00P	FA0-0665-00P (992971J)	1	KEY TOP, NUMERIC
130-12	FC1-5381-00P	FA0-0666-00P (992972K)	1	FRAME, KEY TOP
130-13	FC1-5378-01P	FA0-0667-00P (992974M)	1	KEY TOP, PRINT/RESET
130-16	FC1-5383-00P	FA0-0668-00P (992975N)	1	KNOB, SLIDE
130-2	FC1-5374-00P	FA0-0669-00P (992976P)	1	LABEL, OPERATION KEY
102-37	WT2-0434-000	WT2-5300-000 (363855E)	4	CLIP
810-	FG1-7396-380	FG0-1214-00P (992880L)	1	FIXING ASSEMBLY 220V
	FG1-7397-390	FG0-1223-00P (992881H)	1	FIXING ASSEMBLY 240V
810-33	FA5-1958-000	FA0-0651-00P (992896G)	1	HANDLE
103-22	FF2-7417-00P	FG0-1208-00P (992898J)	1	LEVER, RELEASE
1-3-22B	FC1-5369-00P	FA0-0650-00P (992897H)	1	LEVER, FEEDER ASSEMBLY RELEASE
103-	FG0-1111-00P	FG0-1207-00P (992900Y)	1	KNOB, FIXING ASSEMBLY
190-	FG2-3024-01P	FG0-1225-00P (992884C)	1	EXHAUST FAN ASSEMBLY
190-1	FC1-0893-01P	FF2-0202-00P (992883B)	1	DUCT
100-7	FC1-0751-00P	FA0-0657-00P (992888Q)	1	TRAY, MANUAL FEED
100-6	FF0-0066-01P	FA0-0656-00P (992889R)	1	TRAY, MANUAL FEED
100-19	FA0-0157-00P	FA0-0652-00P (992895F)	1	TRAY, COPY
640-4	FA5-1764-000	FS4-2186-000 (362460M)	1	SPRING, TORSION
640-5	FA5-1765-000	FC1-7200-00P (362462B)	1	ROD, STIRRING 2
101-18	FC1-0983-00P	FA0-0873-00P (992980Q)	1	PLATE, MAGNET CATCH

Fig./Key no.	Part no. (OCI part no. is in parenthesis)		Q'ty	Part name
	NP1550	NP6216		
350-	FG2-2978-01P	FG0-1070-00P(362190F)	1	FEEDER ASSEMBLY
350-1	FA5-1891-000	FA0-0244-00P(362191U)	3	BELT FEEDER
350-4	FA5-1894-000	FA0-0245-00P(362192V)	1	SHAFT
350-5	FA5-1895-000	FA0-0247-00P(362194X)	3	PULLEY, DRIVE
350-6	FA5-1896-000	FA0-0246-00P(362193W)	3	PULLEY
350-7	FC1-0705-00P	FA0-0251-00P(362198B)	1	SEAL, DUCT
350-17	FA5-1908-000	FA0-0252-00P(362199C)	1	GUIDE, PAPER FEED
930-	FG2-3008-01P	FG0-1226-00P(992760A)	1	DC CONTROLLER PCB ASSEMBLY

Added parts

Fig./Key no.	Part no. (OCI part no. is in parenthesis)	Q'ty	Part name
	NP6216		
350-8	FA0-0250-00P(362197S)	1	SUPPORT, PAPER TRANSPORTATION
350-11	FA0-0249-00P(362196Z)	1	GUIDE, AIR
350-14	FA0-0248-00P(362195Y)	1	GUIDE, PAPER
350-24	FA0-0277-00P(362371P)	1	CUSHION
350-501	XB1-2300-409	2	SCREW, MACH., TRUSS HEAD, M3x4
350-502	XB1-2400-609	9	SCREW, MACH., TRUSS HEAD, M4x6
350-503	XD3-2200-122	1	PIN, DOWEL
350-504	XD2-1100-642	5	RING, E
350-505	XD1-4200-402	1	WASHER, TOOTHED LOCK
350-506	XD2-1100-502	2	RING, E
350-507	XD3-2200-182	1	PIN, DOWEL
350-508	XD1-1108-225	2	SHIM
930-Q318	FG0-1229-00P(992768E)	1	ROM
930-Q303	FG2-9015-00P(994661V)	1	CPU

Deleted parts

Fig./Key no.	Part no. (OCI part no. is in parenthesis)	Q'ty	Part name
	NP1550		
350-3	FA5-1893-000	1	PLATE, ROLLER HOLD
350-8	FA5-1898-000	1	PLATE, MOUNT, FEED ASSEMBLY
350-11	FC1-1025-00P	1	DUCT
350-14	FA5-1905-000	16	HOLDER, PULLEY
350-15	FA5-1906-010	3	COUPLING
350-23	FH7-1529-000	1	FAN, DC24V
350-27	FA5-2160-000	1	CUSHION
350-26	FA5-1909-000	1	GUIDE, PAPER FEED, FRONT
350-28	WT2-0030-000	1	TIE, CABLE
350-30	XA9-0134-000	6	NUT, PUSH

<NP1550 Service Manual (FY8-13BN-010) modified contents>

Page	NP1550	NP6216
3-24	**G. Developing Assembly/Drum Cleaner** **1. Outlines** • • • • • When the amount of toner in the hopper is sufficient, the sensor output is “1”. When it is below the specified level, the output is “0”. The DC controller checks for 5 seconds after copying is completed if the TONER EMPTY signal (TEP) is being outputted. If the signal is outputted continuously for 5 seconds, it is regarded as “TONER OUT -First time”. If another TONER EMPTY signal is received in the same way after the next copying operation is completed, it is regarded as “TONER OUT -Second time” and the DC controller makes the ADD TONER indicator flash. The CT unit for this copier does not have a remaining toner sensor or waste toner sensor.	**G. Developing Assembly/Drum Cleaner** **1. Outlines** • • • • • When the amount of toner in the hopper is sufficient, the sensor output is “1”. When it is below the specified level, the output is “0”. The DC controller checks for 40 seconds during copying if the TONER EMPTY signal (TEP) is being outputted. If the signal is outputted continuously for 40 seconds, it is regarded as “TONER OUT” and the DC controller makes the ADD TONER indicator flash. The CT unit for this copier does not have a remaining toner sensor or waste toner sensor.

Page 5-5

NP1550

C. Checking the Operation

Step	Work	Remarks
1 • • • •	Turn the door switch ON using the door • • • •	 • • • •
8	Make a copy after the COPY START key has gone green. Wait for ten seconds or more after the drum has stopped, and make another copy.	Check the following: • No abnormal sound is heard. • The ADD TONER indicator flashes about five to ten seconds after the second copy operation is over.
9	Check that counter operaters properly.	Check that the reading has increased by two from the reading recorded in step 7.

NP6216

C. Checking the Operation

Step	Work	Remarks
1 • • • •	Turn the door switch ON using the door • • • •	 • • • •
8	After making any copies of the following. The COPY START key goes red. 1 making 7 continuous copies on A3 2 making 9 continuous copies on A4 3 making 5 single copies on A3 4 making 5 single copies on A4	Check the following: • No abnormal sound is heard. • The ADD TONER indicator starts to flash when the Copy key on the control panel turns red at the end of copying for any of following. 1 making 7 continuous copies on A3 2 making 9 continuous copies on A4 3 making 5 single copies on A3 4 making 5 single copies on A4
9	Check that counter operaters properly.	Check that the reading has increased by the number of copies made from the reading recorded in step 8.

<NP1550 Service Manual (FY8-13BN-010) added contents>

<table>
<tr><td>Page</td><td>NP6216</td></tr>
<tr><td>3-41</td><td>

VI. SERVICE MODE

A. Outline

•
•
•
•

B. Using the Service Mode

•
•
•
•

<Mode No.C18>
Press the AE key twice, and check ‘CEE’ is indicated on the control panel; then, press the SORT/GROUP key.

<Mode No.C21>
Change the setting using the NUMERIC keypad, and press the SORT/GROUP key.

8) Press the service switch (SW300) to leave the service mode.

</td></tr>
<tr><td>3-43a</td><td>

<table>
<tr><th>Mode No.</th><th>Display</th><th>Default Settings</th><th>Remarks</th></tr>
<tr><td rowspan="2">C21</td><td rowspan="2">Auto shut off mode setting</td><td>0</td><td rowspan="2">Selects/Deselects the auto shut off mode: 0, OFF; 1, ON
(The copier’s fixing unit and keyboard unless the ENERGY SAVER key will turn OFF if the copier is left alone for 30 minutes.)</td></tr>
<tr><td>0 or 1</td></tr>
</table>

</td></tr>
</table>

<NP1550 Service Hand Book(FY8-2380-010) modified contents>

Page 4-15

NP1550

27. Indicator does not GO OFF when there is toner during black copying

Cause/Problem area	Procedure	Check	Result	Action
DC controller PCB	1	Does the indicator come back ON when the power switch is set OFF, then ON again?	YES	Replace the DC controller PCB.
DC controller PCB	2	Turn the power OFF, and disconnected J39. Turn the power ON, and press the COPY START key; 5 sec or moreafter the main motor has stopped, press the COPY START key once again. Does the indicator go ON when the main motor is at rest?	YES	Replace the DC controller PCB.
Stirring rod gear	3	Does the stirring rod inside the black developing assembly operate normally?	NO	Check the stirring rod and gear.
Black toner level sensor			YES	Replace the black toner level sensor(TS1).

NP6216

27. Indicator does not GO OFF when there is toner during black copying

Cause/Problem area	Procedure	Check	Result	Action
DC controller PCB	1	Does the indicator come back ON when the power switch is set OFF, then ON again?	YES	Replace the DC controller PCB.
DC controller PCB	2	Turn the power OFF, and disconnected J39. Turn the power ON, and press the COPY START key to make any copies of the following: 1 making 7 continuous copies on A3 2 making 9 continuous copies on A4 3 making 5 single copies on A3 4 making 5 single copies on A4 Press the COPY START key once again. Does the indicator go red when any copies of above has been made?	YES	Replace the DC controller PCB.
Stirring rod gear	3	Does the stirring rod inside the black developing assembly operate normally?	NO	Check the stirring rod and gear.
Black toner level sensor			YES	Replace the black toner level sensor(TS1).

SERVICE HANDBUCH

Canon

AUG. 1994

FY8 - 2980 - 000

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Lesen der Fehlersuchtabellen

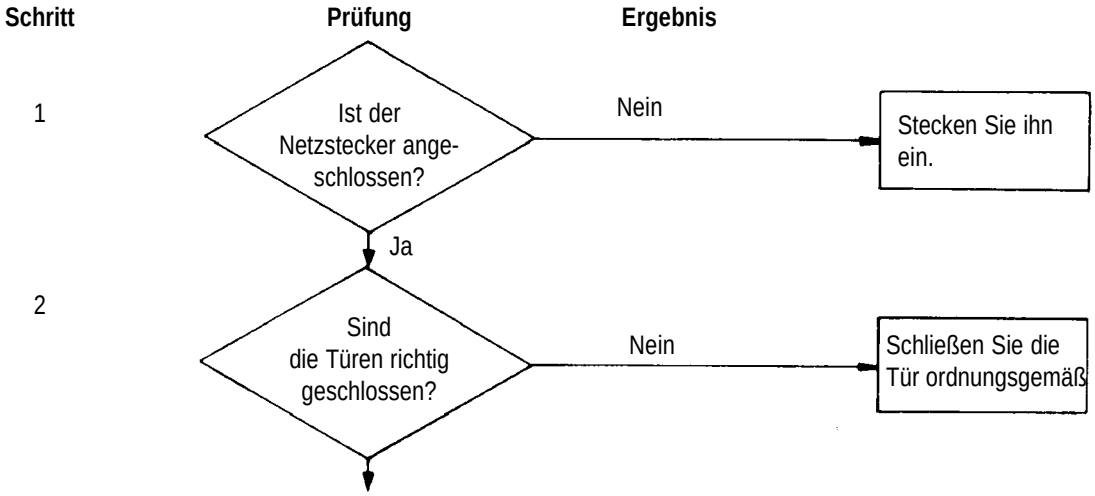
Die Fehlertabellen sind modifizierte Ablaufdiagramme.
Am unteren Beispiel wird das Lesen dieser Tabellen erläutert.

Beispiel: Keine Spannungsversorgung.

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Netzkabel	1	Ist das Netzkabel angeschlossen?	Nein	Stecken Sie das Netzkabel ein.
Türschalter	2	Ist die Vordertür und Ausgabetür richtig geschlossen?	Nein	Schließen Sie die Türen ordnungsgemäß.

Um den Fehler zu finden, lesen Sie zunächst die Spalte „Mögliche Ursache“. Im Beispiel „Keine AC-Spannungsversorgung“ sind die Ursachen Netzkabel, Türschalter, etc.

Um den Fehler zu beheben, gehen schrittweise vor und führen die angegebenen Prüfungen durch. Abhängig vom Ergebnis der Prüfung führen Sie dann die beschriebene Maßnahme durch. Können Sie das Problem nicht einkreisen, fahren Sie mit dem nächsten Schritt fort.



Zur Spannungsprüfung mit einem Multimeter wird die Polarität der Prüfspitzen mit dem (+) und (-) Zeichen angegeben.
Beispiel:
Messen Sie die Spannung zwischen J109-1 (+) und J109-2 (-) am DC Controller PCB.
Steckerpin J109-1 (+) positive Prüfspitze
Steckerpin J109-2 (-) negative Prüfspitze

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WARTUNG UND INSTANDHALTUNG

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I. Periodischer Wartungsplan

Hinweis:
Es dürfen nur die hier angegebenen Lösungs- oder Schmiermittel verwendet werden.

△ : Reinigen ● : Ersetzen X : Schmieren □ : Justieren ◯ : Überprüfen

Einheit	Beschreibung	Periodische Wartung		Bemerkungen
		Alle 15.000 Kopien	Alle 30.000 Kopien	
Außenteile	Vorlagenglas	△		Mit Alkohol reinigen.
	Ozonfilter			Jährlich ersetzen.
Schlitten-antriebs-einheit	Schlittenschienen		X	Mit Alkohol reinigen und anschließend Öl hoher Viskosität auftragen (TKN-0451).
Transport-einheit	Transferführung	△		Feuchtes Tuch.
	Transportband	△		
	Transportrahmen	△		
Optischer Weg	Reflektor der Belichtungslampe		△	Mit Gebläsepinsel reinigen. Bei starker Verschmutzung mit Alkohol reinigen. Die Spiegel 5 und 6 mit dem speziellen Reinigungswerkzeug säubern.
	Seitenreflektor der Belichtungslampe		△	
	Spiegel 1 - 6		△	
	Objektiv		△	
	Staub-Kontrollglas	△		
Korona-einheiten	Primärkorona-Einheit	△		Mit Reinigungspapier trocken abwischen und anschließend mit Alkohol reinigen.
	Primärkorona-Draht	△		
	Transferkorona-Einheit	△		
	Transferkorona-Draht	△		
	Entladungseinrichtung	△		Feuchtes Tuch.
Entwicklungs-einheit	Entwicklungswalzen (vorne und hinten)		△	Mit Alkohol reinigen.
	Seitendichtungen (vorne und hinten)			
Fixier-einheit	Obere Fixierwalze	△		Mit Reinigungöl reinigen.
	Untere Fixierwalze	△		
	Papierführungsplatte	△		Reinigen.
	Separationsklauen (oben und unten)	△		

Das Reinigungsintervall „15.000“ Kopien sollte spätestens nach sechs Monaten durchgeführt werden.

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II. Periodisch zu ersetzende Teile

Um die hohe Leistungsfähigkeit des Kopierers zu erhalten, sollten die Teile der folgenden Tabelle regelmäßig ersetzt werden, auch wenn sie keine sichtbare Beschädigung oder Abnutzung aufweisen.
Während eines regulären Service-Besuches beim Kunden sollten die Teile ersetzt werden, deren Lebensdauer nahezu abgelaufen ist.

Nr.	Beschreibung	Bauteil-Nr.	Menge	Austausch	Bemerkungen
1	Ozonfilter	FF2-5595-000	1	-	Jährlich
2	Entladungseinrichtung	FF1-9438-050	1	50.000	
3	Transferkorona-Draht	FY3-0040-000	Rolle	100.000	115 / 220 / 240 V
4	Seitendichtung oben (kurz) (Entwicklungseinheit)	FA5-1790-000	2	100.000	
	Seitendichtung unten (lang) (Entwicklungseinheit)	FA5-1769-000	2	100.000	
5	Distanzrolle des vorderen Entwicklungszylinders	FA5-1766-000	1	100.000	
6	Distanzrolle des hinteren Entwicklungszylinders	FA5-1767-000	1	100.000	

Hinweis:
Die o.g. Austauschintervalle sind Schätzwerte und können in der Praxis abweichen.

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III. Verschleißteile

Die Werte in der nachfolgenden Tabelle bezeichnen die durchschnittliche Lebenserwartung (Anzahl von Kopien) von Teilen, die aufgrund von Verschleiß oder Beschädigung auf einfache Weise ersetzt werden können.

Stand: Januar 1992

Nr.	Beschreibung	Bauteil-Nr.	Menge	Lebenserwartung (Anzahl von Kopien)	Bemerkungen
1	Ölwalze (Fixiereinheit)	FA5-1952-000	1	20.000	
2	Schlittenantriebskabel	FA5-2073-000	1	100.000	
3	Belichtungslampe (Schlitten)	FH7-3114-000	1	100.000	220 / 240 V
4	Einzugswalze (Einzugseinheit)	FC1-0676-000	6	100.000	
5	Abstreifer (Entwicklungseinheit)	FA5-1768-000	2	100.000	
6	Lager der oberen Fixierwalze (Fixiereinheit)	FS1-1240-000	2	100.000	
7	Vorbelichtungslampe	FG2-4048-000	1	200.000	
8	Obere Fixierwalze (Fixiereinheit)	FA5-1916-050	1	200.000	
9	Untere Fixierwalze (Fixiereinheit)	FA6-3921-000	1	200.000	
10	Obere Separationsklaue (Fixiereinheit)	FB1-0301-000	5	200.000	
11	Untere Separationsklaue (Fixiereinheit)	FA2-9037-000	5	200.000	
12	Walze des Multifeeders	FC1-0741-000	1	90.000	Müssen gleichzeitig ersetzt werden.
13	Kissen (Multifeeder)	FC1-0736-000	1	90.000	

Hinweis:
Die o.g. Austauschintervalle sind Schätzwerte und können in der Praxis abweichen.

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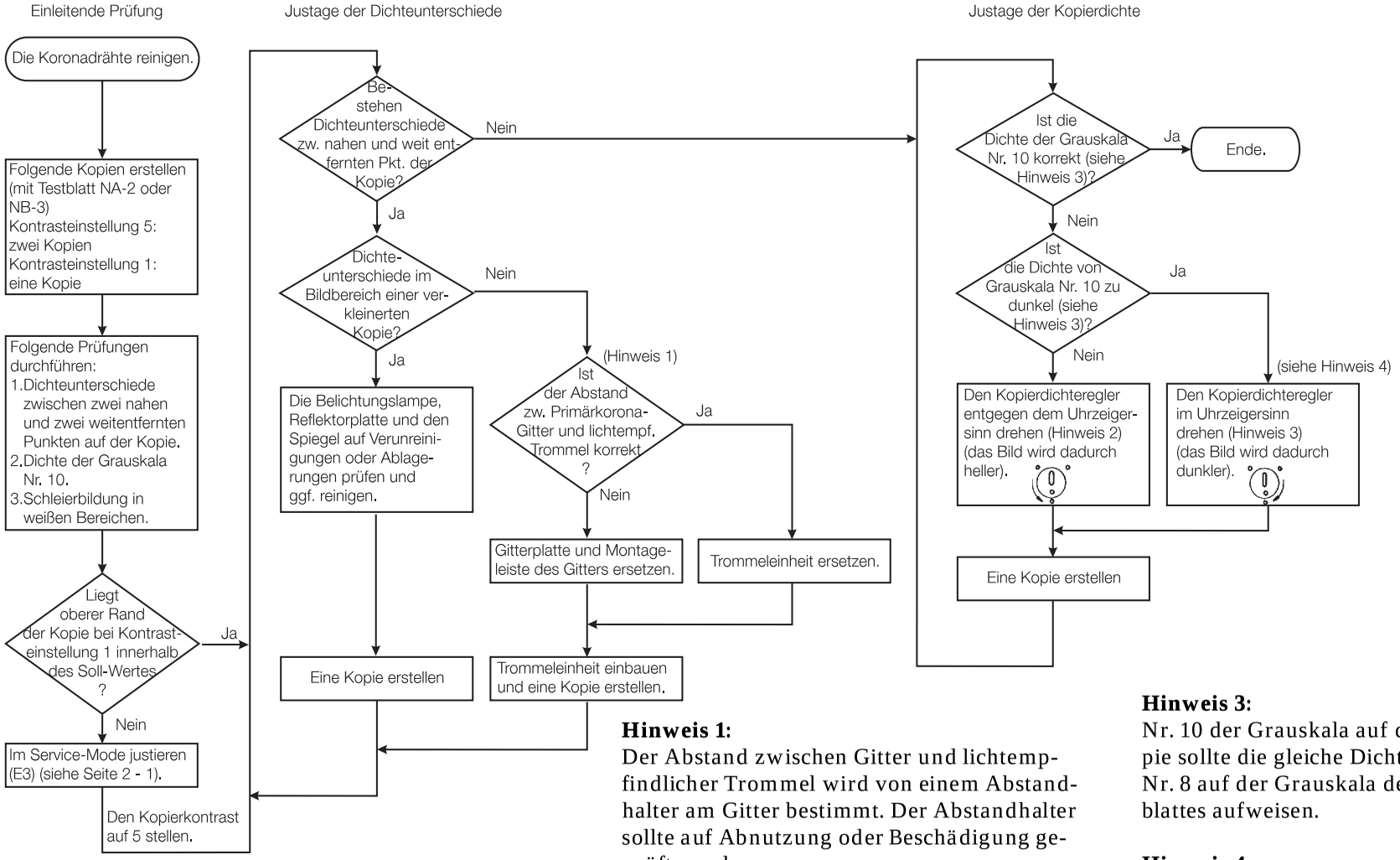
IV. Grundlegende Bildjustage

Die Bildjustage sollte grundsätzlich durchgeführt werden, wenn die lichtempfindliche Trommel ersetzt wurde.
Für die Justage muß die obere Frontplatte und die Vordertür installiert sein.

Zur Bildjustage sollten die folgenden Einstellungen vorgenommen werden:

1. Manuelle Kontrasteinstellung (kein AE)
2. Kontrasteinstellung: 5
3. Kopier-Modus: Direkt


Einleitende Prüfung
Justage der Dichteunterschiede
Justage der Kopierdichte
Die Koronadrähte reinigen.
Folgende Kopien erstellen (mit Testblatt NA-2 oder NB-3)
Kontrasteinstellung 5: zwei Kopien
Kontrasteinstellung 1: eine Kopie
Folgende Prüfungen durchführen:
1.Dichteunterschiede zwischen zwei nahen und zwei weitentfernten Punkten auf der Kopie.
2.Dichte der Grauskala Nr. 10.
3.Schleierbildung in weißen Bereichen.
Liegt oberer Rand der Kopie bei Kontrasteinstellung 1 innerhalb des Soll-Wertes ?
Ja
Nein
Im Service-Mode justieren (E3) (siehe Seite 2 - 1).
Den Kopierkontrast auf 5 stellen.
Bestehen Dichteunterschiede zw. nahen und weit entfernten Pkt. der Kopie?
Nein
Ja
Dichteunterschiede im Bildbereich einer verkleinerten Kopie?
Nein
Ja
Die Belichtungslampe, Reflektorplatte und den Spiegel auf Verunreinigungen oder Ablagerungen prüfen und ggf. reinigen.
(Hinweis 1)
Ist der Abstand zw. Primärkorona-Gitter und lichtempf. Trommel korrekt ?
Ja
Nein
Gitterplatte und Montageleiste des Gitters ersetzen.
Trommeleinheit ersetzen.
Eine Kopie erstellen
Trommeleinheit einbauen und eine Kopie erstellen.
Ist die Dichte der Grauskala Nr. 10 korrekt (siehe Hinweis 3)?
Ja
Ende.
Nein
Ist die Dichte von Grauskala Nr. 10 zu dunkel (siehe Hinweis 3)?
Ja
Nein
(siehe Hinweis 4)
Den Kopierdichteregler entgegen dem Uhrzeigersinn drehen (Hinweis 2) (das Bild wird dadurch heller).
Den Kopierdichteregler im Uhrzeigersinn drehen (Hinweis 3) (das Bild wird dadurch dunkler).
Eine Kopie erstellen

Hinweis 1:
Der Abstand zwischen Gitter und lichtempfindlicher Trommel wird von einem Abstandhalter am Gitter bestimmt. Der Abstandhalter sollte auf Abnutzung oder Beschädigung geprüft werden.

Hinweis 2:
Dadurch erhält die Entwicklungsvorspannung eine höhere Ladung, die Intensität der Belichtungslampe ändert sich jedoch nicht.

Hinweis 3:
Nr. 10 der Grauskala auf der Kopie sollte die gleiche Dichte wie Nr. 8 auf der Grauskala des Testblattes aufweisen.

Hinweis 4:
Wird der Kopierdichteregler zu weit im Uhrzeigersinn gedreht, kann dies zur Schleierbildung in weißen Bereichen führen.

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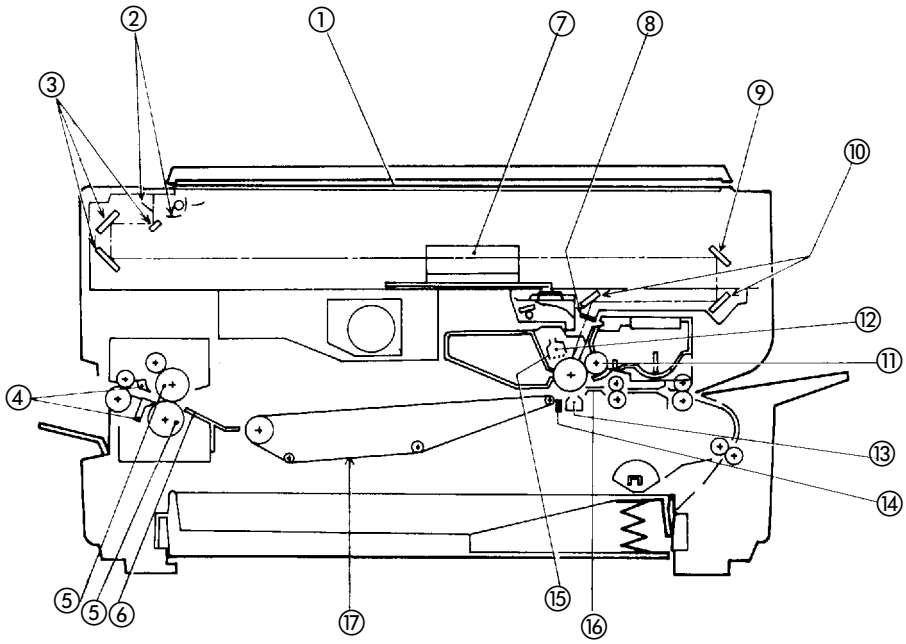
V. Wartungspunkte



Vorlagenglas/Schlitten

Nr.	Position	Werkzeug/Reinigungsmittel	Maßnahme/Bemerkungen
①	Vorlagenglas	Alkohol	Reinigen.
②	Reflektoren	Gebläsebürste	Reinigen.
③	Spiegel 1, 2 und 3	Gebläsebürste oder Alkohol und Reinigungspapier	Mit Gebläsebürste reinigen. Bei hartnäckigen Verunreinigungen mit Alkohol reinigen.

Fixiereinheit und Einzugseinheit

Nr.	Position	Werkzeug/Reinigungsmittel	Maßnahme/Bemerkungen
④	Separationsklauen	Alkohol	Reinigen.
⑤	Obere Fixierwalze, untere Fixierwalze	Reinigungsöl (TKN-0464)	Reinigen.
⑥	Papierführungsplatte	Alkohol	Reinigen.

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Optischer Weg

Nr.	Position	Werkzeug/Reinigungsmittel	Maßnahme/Bemerkungen
⑦	Objektiv	Gebläsebürste oder Alkohol und Reinigungspapier	Mit Gebläsebürste reinigen. Bei hartnäckigen Verschmutzungen mit Alkohol reinigen.
⑧	Staub-Kontrollglas		
⑨	Spiegel 4		
⑩	Spiegel 5, 6	Spiegelreinigungswerkzeug	Reinigen.

Koronaeinheiten

Nr.	Position	Werkzeug/Reinigungsmittel	Maßnahme/Bemerkungen
⑪	Entwicklungswalzen	Alkohol	Reinigen.
⑫	Primärkorona-Einheit	Alkohol mit faserfreiem Papier	Mit trockenem Tuch reinigen, anschließend mit einem faserfreien, alkoholgetränkten Reinigungspapier säubern.
⑬	Transferkorona-Einheit		
⑭	Entladungseinrichtung	Gebläsebürste	
⑮	Primärkorona-Gitter	Gebläsebürste	Reinigen.

Separation- und Transfereinheiten

Nr.	Position	Werkzeug/Reinigungsmittel	Maßnahme/Bemerkungen
⑯	Transferführung	Feuchtes Tuch	Reinigen.
⑰	Transportband Transporteinheit		

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KAPITEL 2

STANDARDWERTE UND JUSTAGEN

I. Mechanik . . . . . 2 - 1
II. Elektrische Einstellungen . . . . . 2 - 8

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I. Mechanik

1. Vorderer, nicht kopierbarer Bereich

Unterhalb des Vorlagenglases befindet sich ein weißer Streifen (siehe untere Abbildung). Wird, wenn der Schlitten den weißen Streifen passiert, Vorspannung an das Gitter der Primärkorona gelegt, wird die Vorderkante der Kopie weiß wiedergegeben. Liegt dieser weiße, nicht kopierbare Bereich außerhalb der Standardwerte, ist das Timing an dem die Gittervorspannung von Off nach On schaltet, im Service-Mode C3, zu justieren.

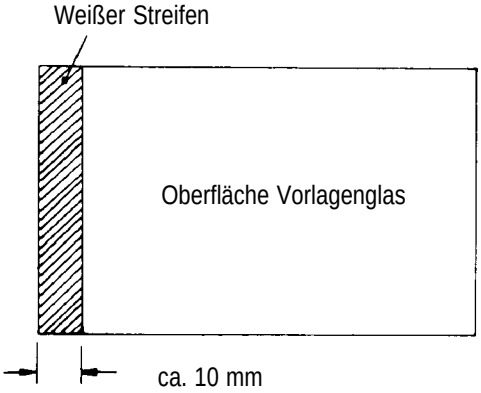

Abb. 2 - 1

Der Standardwert für den vorderen, nicht kopierbaren Bereich auf einer Direktkopie des Testblattes beträgt 2,0 ± 1,5 mm.

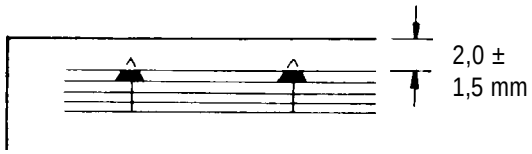

Abb. 2 - 2

Eine höhere Einstellung (C3) vergrößert den vorderen, nicht kopierbaren Rand in Einheiten von 0,25 mm.

2. Justage der Bildvorderkante

Die Justagen erfolgen im Service-Mode (C2), so daß bei einer Kopie des Testblattes im Direkt-Modus der Abstand 10,0 ± 1,5 mm beträgt.

Hinweis:
Vor der Justage des vorderen Bildrandes muß der vordere, nicht kopierbare Bildbereich eingestellt werden.

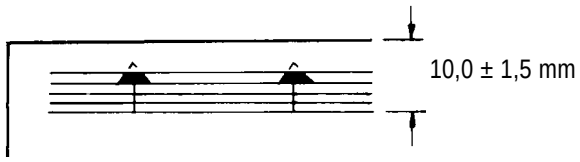

Abb. 2 - 3

Eine höhere Einstellung im Service-Mode (C2) vergrößert den vorderen, bildfreien Rand.

3. Seitenränder

Der Standardwert für den Seitenrand auf einer Direktkopie des Testblattes beträgt 10,0 ± 2 mm.

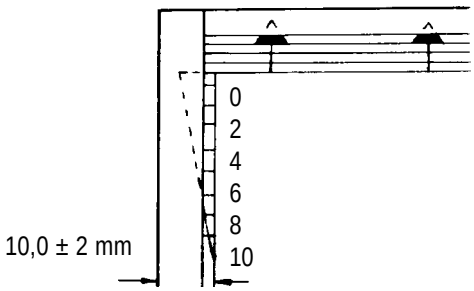

Abb. 2 - 4

Zum Justieren die beiden Schrauben lockern und die Verriegelungseinheit der Kassette an der hinteren Seite der Bodenplatte verschieben.

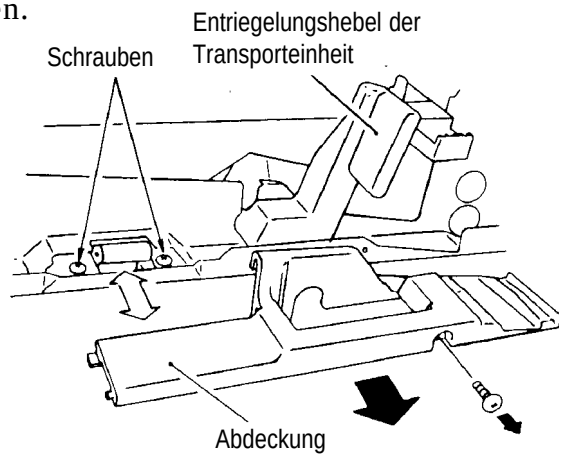

Abb. 2 - 5

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4. Installation des Antriebsseils

Diese Einheit wurde bereits im Herstellungswerk mit Speziallehren präzise justiert. Daher dürfen nur die hier gezeigten Bauteile und Schrauben ausgebaut oder gelöst werden.

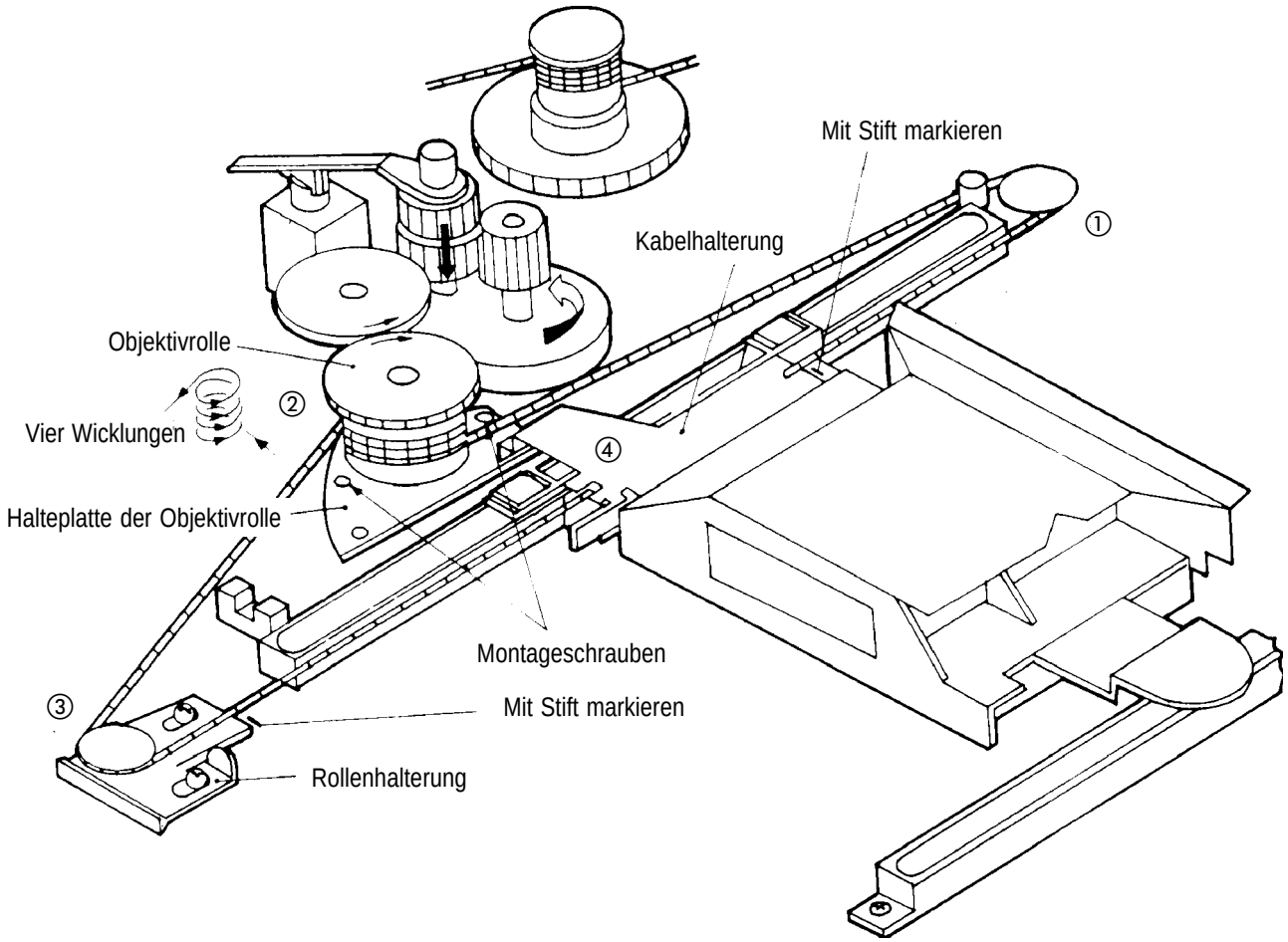

Abb. 2 - 6

a. Ausbau des Objektivseils

1) Die drei Schrauben entfernen und den oberen Rahmen abnehmen.
2) Die Position der Rollen-Halteplatte und der Drahtbefestigungsplatte mit einem Stift markieren.
3) Die beiden Befestigungsschrauben der Rollen-Halteplatte lösen.
4) Das Seil entfernen.

b. Anbringen des Objektivseils

1) Die beiden Schrauben der Befestigungsplatte für die Objektivrolle lösen und die Objektivrolle entfernen (siehe Abb. 2 - 6).
2) Das Objektivseil um die Objektivrolle wikkeln (siehe Abb. 2 - 6) und mit den beiden Befestigungsschrauben fixieren.
3) Die Befestigungsplatte der Rolle in die mit dem Stift markierte Position schieben und mit den beiden Befestigungsschrauben fixieren.

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5. Anbringen des Schlittenseils

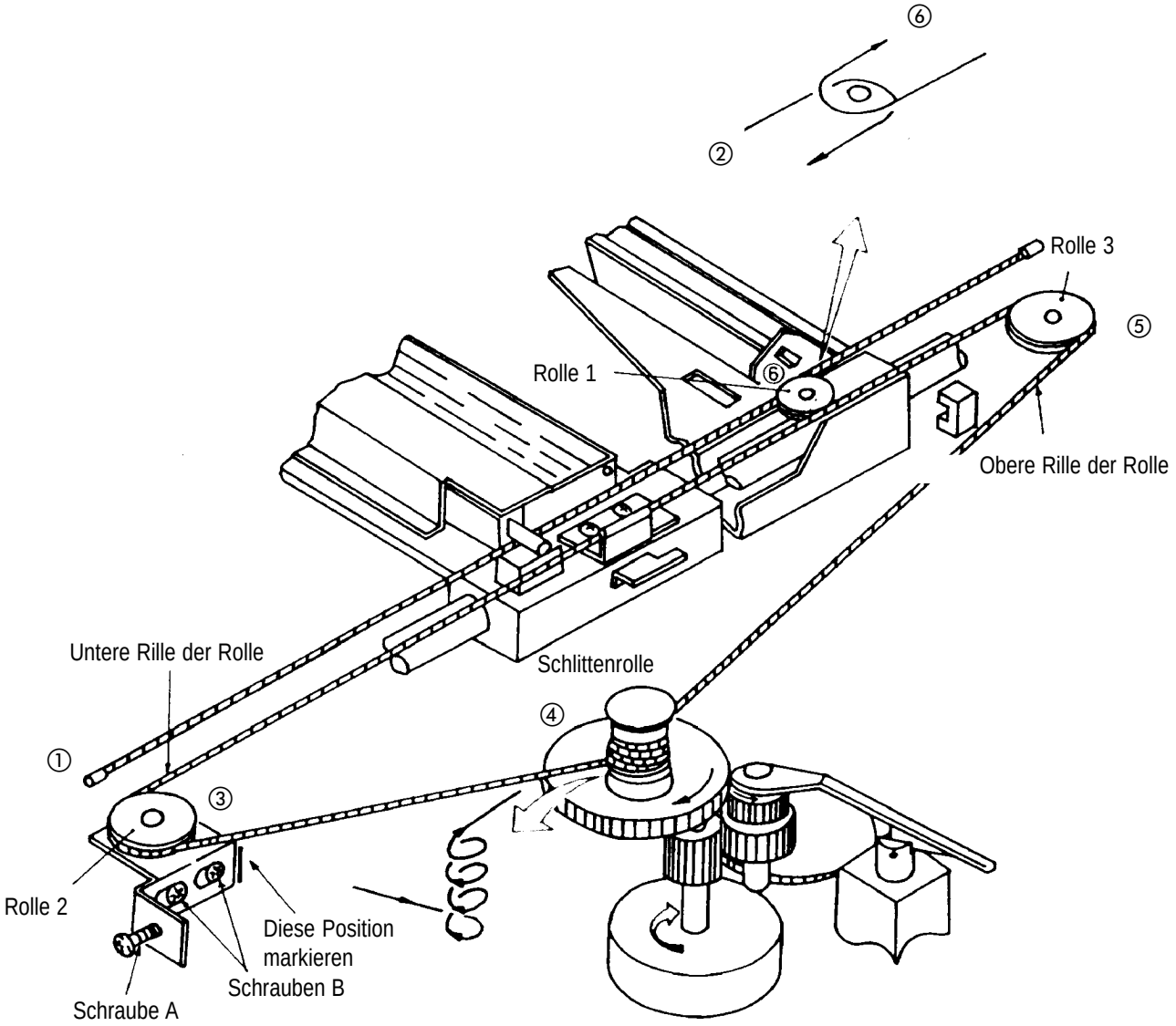

Abb. 2 - 7

6. Justage der Spannung des Schlittenseils

Die Halterung von Spiegel 1 in Heimposition (Startposition) bewegen. Wie jetzt in Abb. 2-8 gezeigt, an Punkt (A) (ca. die Mitte) des freien Kabels so mit einer Federwaage ziehen, daß sich die Seile berühren.

Schraube A von Abb. 2-7 jetzt so drehen, daß auf der Federwaage 1,0 ± 0,5 kg angezeigt werden und anschließend diese Position fixieren.

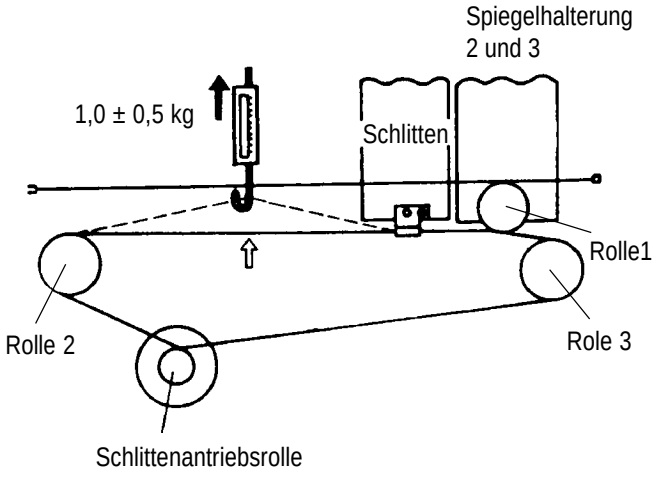

Abb. 2 - 8
Aufsicht

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7. Justage der Spiegelposition (Länge des optischen Weges zwischen den Spiegeln 1 und 2)

Vor dieser Justage muß die Spannung des Schlittenseils korrekt eingestellt sein. Die Position des Schlittens (Spiegel 1) wird durch die Spannungsveränderung des Schlittenseils justiert (lockern der Befestigungsschrauben).

Zur Referenz:
1. Das Kabel dehnt sich nach einer größeren Anzahl von Kopien und macht dadurch eine Justage notwendig.
2. Ein falscher Abstand zwischen Spiegel 1 und Spiegel 2 verursacht einen Fehler im Seitenverhältnis der Kopie und einen schwachen Fokus. Das kopierte Bild verliert dadurch an Schärfe und Genauigkeit.

1) Zwei Linien im Abstand von 10 mm von den Seitenrändern des Kopierpapiers ziehen (siehe Abb. 2 - 9).

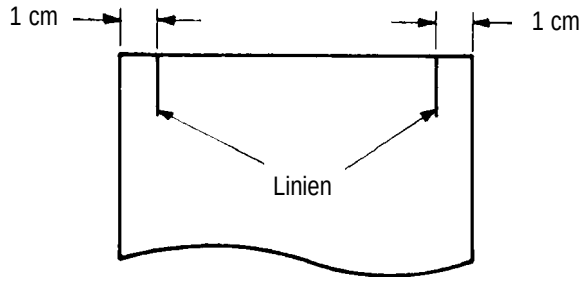

Abb. 2 - 9

2) Von diesem Blatt eine Kopie erstellen (A).
3) Ein sauberes Blatt Kopierpapier auf das Vorlagenglas legen und das mit der Hand markierte Blatt durch den Kopierer ziehen (den Multifeeder benutzen) (B).

• Durch den Transport innerhalb des Kopierers wird die Schrumpfung der Kopie angeglichen.

4) Zur Kontrolle werden jetzt die Linien auf der linken Seite des kopierten Blattes (A) und die des durch den Kopierer transportierten Blattes (B) übereinandergelegt. Sind die Linien auf der rechten Seite nicht dekkungsgleich, muß die Position des Schlittens so justiert werden, daß die Abmessungen X und Y gleich sind.

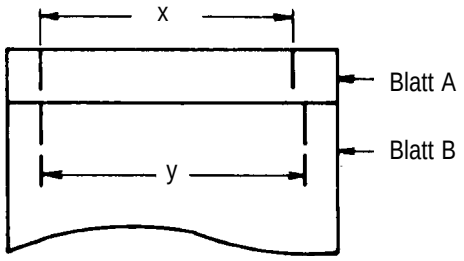

Abb. 2 - 10

X = Y Korrekt
X > Y Den Schlitten in Richtung A bewegen.
X < Y Den Schlitten in Richtung B bewegen.

Zur Referenz:
Ist der Abstand zwischen den Spiegeln kurz, wird das Bild vergrößert. Ist der Abstand zu lang, wird das Bild verkleinert.

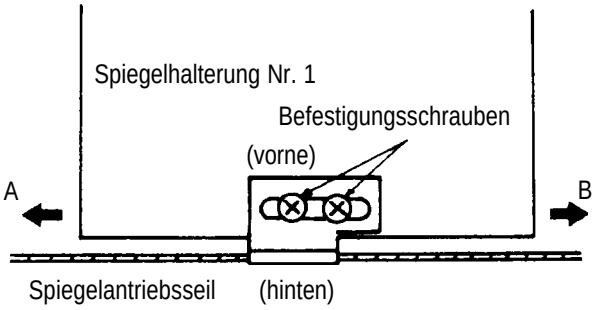

Abb. 2 - 11
Vorderansicht

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8. Einstellen der Riemenspannung

Die Trommel wird über einen Steuerriemen vom Hauptmotor angetrieben.
Zum Einstellen der Riemenspannung wird die Einbauposition des Hauptmotors geändert, indem eine geeignete Montageöffnung ausgewählt wird. Die optimale Riemenspannung ist erreicht, wenn bei einer Belastung des oberen Riemens von 500 g der Abstand zum unteren Riemen zwischen 20 mm und 25 mm beträgt.

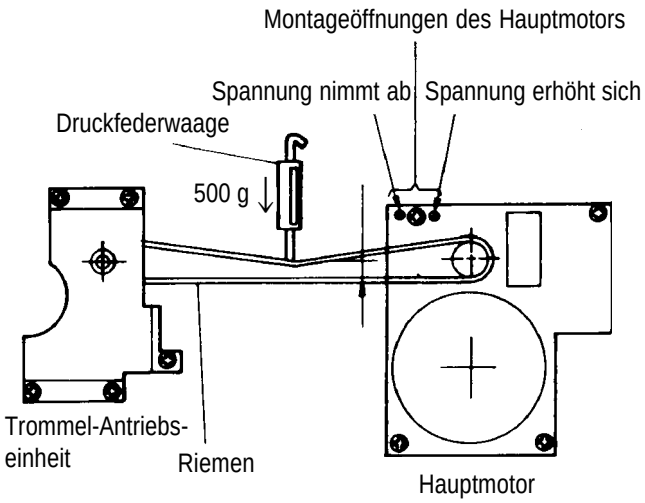

Abb. 2 - 12

9. Einbauposition der Transferführung

Beim Einbau der Transferführung ist darauf zu achten, daß der Abstand zwischen der Walze der Transfereinheit und der lichtempfindlichen Trommel ca. 1,8 ± 0,2 mm beträgt (siehe Abb. 2 - 13).

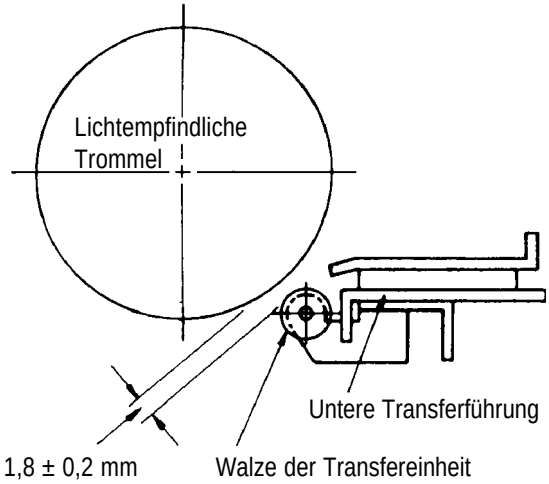

Abb. 2 - 13

10. Einbauposition der Schlitten-Antriebseinheit

Die vier Schrauben der Schlitten-Antriebseinheit lockern und die Antriebseinheit gleichzeitig an die hintere Platte (Richtung von Pfeil 1) und in Richtung des manuellen Einzugs (Richtung von Pfeil 2) drücken, so daß sie die Rollenhalterung und das Objektivzahnrad berührt. In diesem Zustand können die Schrauben angezogen werden. Abschließend ist zu prüfen, daß zwischen den Objektivzahnrädern ausreichend Spiel vorhanden ist.

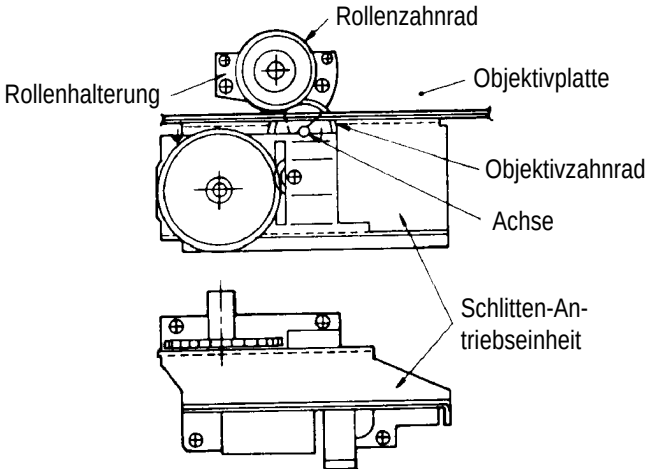

Abb. 2 - 14

11. Anbringen der Koronadrähte für Primär- und Transferkorona-Einheiten

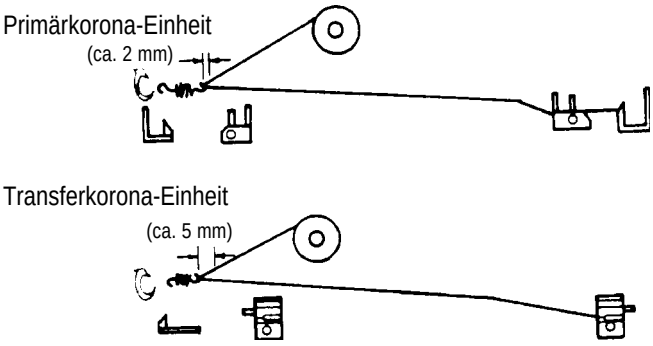

Abb. 2 - 15

Der Koronadraht darf weder geknickt noch verdrillt sein und muß eine unbeschädigte Goldbeschichtung aufweisen.
Der Koronadraht darf nicht durchhängen (die Länge der Spannfeder für den Koronadraht sollte ca. 12 mm betragen).
Der Koronadraht muß in der V-förmigen Vertiefung des Höheneinstellers verlegt sein.

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12. Höhenjustage der Koronadrähte

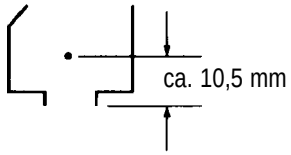
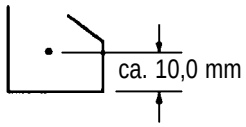
Korona-Einheit	Standardposition	Toleranz
Primär-korona-Einheit		± 2 mm
Transfer-korona-Einheit		± 2 mm

Abb. 2 - 16

Hinweis:
Die Höhe (Position) des Koronadrahtes für Primär- und Transferkorona-Einheiten kann durch Drehen der Stellschraube an der Rückseite des Koronadrahtes justiert werden. Eine Umdrehung der Schraube verursacht eine Höhenänderung von ca. 0,7 mm.

13. Einbauposition der Seitendichtungen (Entwicklungseinheit)

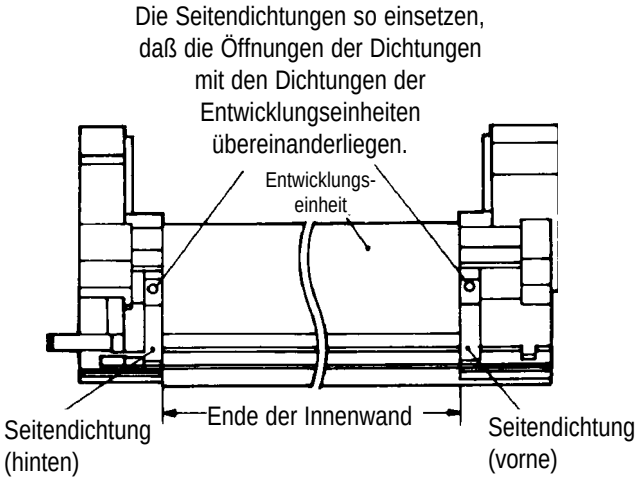

Die Seitendichtungen so einsetzen, daß die Öffnungen der Dichtungen mit den Dichtungen der Entwicklungseinheiten übereinanderliegen.
Entwicklungs-einheit
Seitendichtung (hinten)
Ende der Innenwand
Seitendichtung (vorne)

Abb. 2 - 17

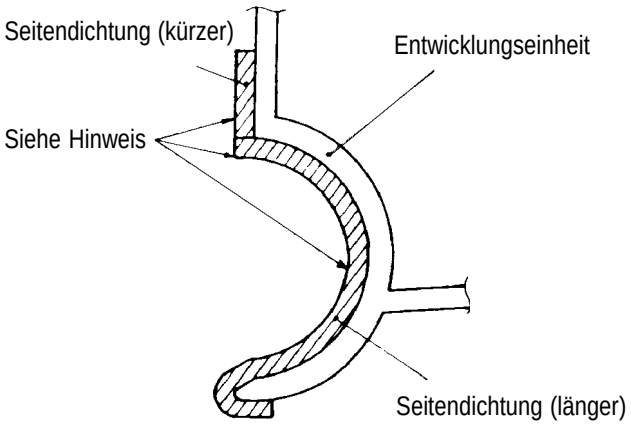
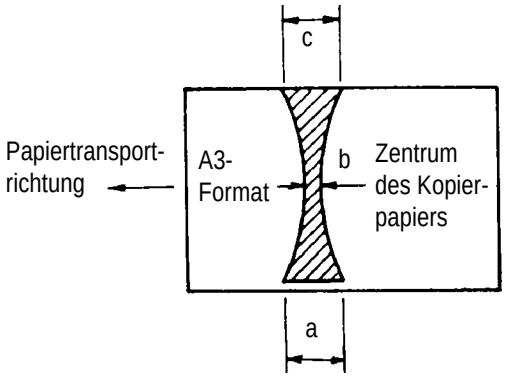


Abb. 2 - 18

- Die vordere und hintere Seitendichtung sollten grundsätzlich gleichzeitig gewechselt werden.
- Die Seitendichtungen so installieren, daß sie bündig an den Innenwänden der Entwicklungseinheit anliegen.

14. Justage des Andrucks der Fixierwalzen

Eine Andruckmessung sollte die in Tab. 2 - 1 gezeigten Werte ergeben. Bei abweichenden Messungen kann der Andruck mit der Bolzenschraube justiert werden.



Hinweis:
Die Strecken A und C sollten jeweils 10 mm vom Papierrand entfernt gemessen werden.

Abb. 2 - 19

Strecke	Gemessen nach einer ausreichenden Aufheizung der oberen und unteren Fixierwalze.
B	4,0 ± 0,5 mm
A - C	0,5 mm oder weniger

Tabelle 2 - 1

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• Messen des Andrucks

Bei kalten Fixierwalzen sollte der Kopierer zunächst 15 Minuten eingeschaltet bleiben. Nach dem Erstellen von 20 Kopien kann dann der Walzenandruck gemessen werden.

Meßvorgang

1) Den Vorlagendeckel öffnen und eine völlig schwarze Kopie erstellen.
2) Sobald die Vorderkante der Kopie das Ausgabefach erreicht, wird der Kopierer ausgeschaltet.
3) Nach einer Wartezeit von 15 Sekunden kann die Vordertür und die Tür der Fixiereinheit geöffnet und das Kopierpapier aus der Fixiereinheit entfernt werden.
4) Die Messungen werden an dem Tonerbereich vorgenommen, der eine glänzende Oberfläche aufweist (siehe Abb. 2 - 19).

15. Federstärke der Kassette

Bei unzureichendem Federdruck wird die Lifterplatte der Kassette nicht ordnungsgemäß angehoben und es können Einzugsprobleme entstehen.

Sollte dies der Fall sein, kann die Federstärke mit einer Druckfederwaage gemessen werden.

Die Druckfederwaage an Punkt A (siehe Abb. 2 - 20) ansetzen, die Platte 3 mm herunterdrücken und den Druckwert ablesen. Liegen die Werte außerhalb des Bereichs von Tabelle 2 - 2 sind beide Federn zu ersetzen (der Federdruck kann nicht justiert werden).

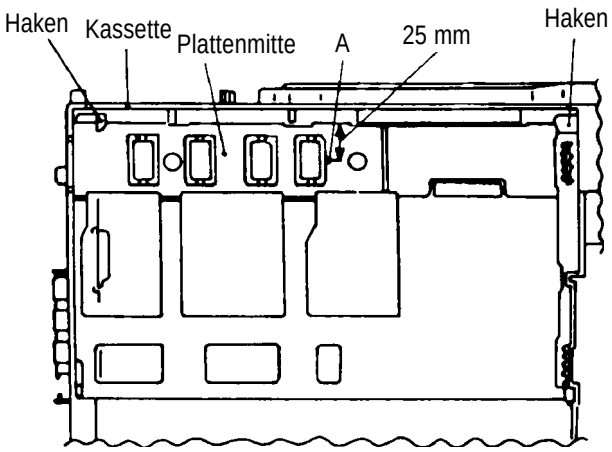

Abb. 2 - 20

Kassettengröße	**Anzeige auf der Federwaage**
A3- und LGR-Kassette	390 ± 30 g
A4R- und LTR-R-Kassette	350 ± 20 g
STMT	330 ± 40 g

Tabelle 2 - 2

16. Grad der Wölbung (Multifeeder)

Falls das Papier vom Multifeeder schief eingezogen wird oder an der Vorderkante Falten festgestellt werden, sind die folgenden Justagen durchzuführen. Die Justagen ändern den Wölbungswinkel des Kopierpapiers zwischen der Einzugs- und der Zeitwalze.

1) Ca. 50 Blatt A4-Papier (80 g / qm) auf die Ablage des Multifeeders legen.
2) Den Multifeeder am Bedienfeld auswählen.
3) Die Start-Taste betätigen.
4) Prüfen, ob die Vorderkante des Kopierpapiers gegen die Zeitwalze stößt und sich wölbt. Gleichzeitig den Kopierer ausschalten.
5) Den Abstand zwischen A (Unterkante des zweiten Blattes) und B (Unterkante des ersten Blattes) messen.

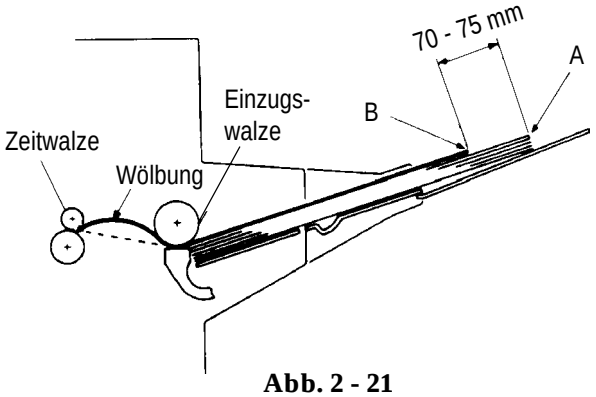

Abb. 2 - 21

6) Den Kopierer einschalten und im Service-Mode die Position C3 auswählen.
7) Die Einstellung so vornehmen, daß der Abstand zwischen A und B 70 - 75 mm beträgt.

Hinweis:
Eine höhere Einstellung ergibt höhere Meßwerte, da das Ausschalt-Timing der Kupplung verzögert wird (in Einheiten von 0,25 mm).

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II. Elektrische Einstellungen

1. Prüfpunkte, LEDs und Potentiometer auf den Platinen

Die für den Außendienst relevanten Potentiometer und Prüfpunkte sind nachfolgend aufgeführt.
Hier nicht beschriebene Potentiometer und Prüfpunkte dienen ausschließlich zur Werksjustage und erfordern spezielle Werkzeuge und Meßinstrumente, da sie mit äußerster Präzision justiert werden müssen.

Hinweis:
1. Einige LEDs können aufgrund von Kriechströmen leicht glimmen, auch wenn sie ausgeschaltet sind.
2. Potentiometer, die im Außendienst justiert werden können.
   Potentiometer, die nicht im Außendienst justiert werden dürfen.

DC-Controller-PCB

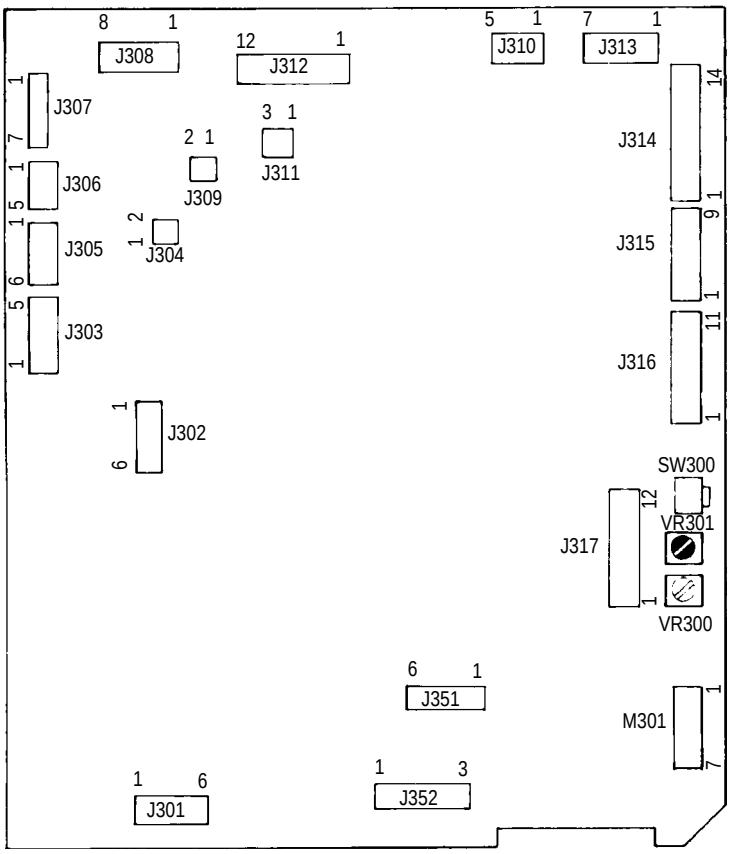

Abb. 2 - 22

VR-Nr.	Beschreibung
VR300	Zur Werkseinstellung.
VR301	Justage des Referenzpunktes für AE.

Tabelle 2 - 3

SW-Nr.	Beschreibung
SW300	Zum Einschalten oder Verlassen des Service-Mode.

Tabelle 2 - 4

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2. AE-Justage

Nach Austausch des AE-Sensors oder des DC-Controller-PCBs sind die folgenden Justagen vorzunehmen.

1) Den Potentiometerdeckel von der Rückseite der linken Abdeckung entfernen.
2) Den Kopierer einschalten.
   Die Aufwärmperiode abwarten.
3) Das NB-3- oder NA-2-Testblatt auf das Vorlagenglas legen und den Vorlagendeckel schließen.
4) Den Schalter SW300 auf dem DC-Controller-PCB drücken.
   Im Display für die Anzahl der Kopien erscheint „0“.
   Falls die „0“ nicht erscheint, ist die numerische Taste „0“ am Bedienfeld zu betätigen.
5) Die Taste Sortieren / Gruppieren am Bedienfeld betätigen.
   Der Schlitten bewegt sich zur AE-Meßposition und die Belichtungslampe schaltet sich ein (siehe Hinweis).
6) VR301 auf dem DC-Controller-PCB wird jetzt so justiert, daß „22“ im Display erscheint.

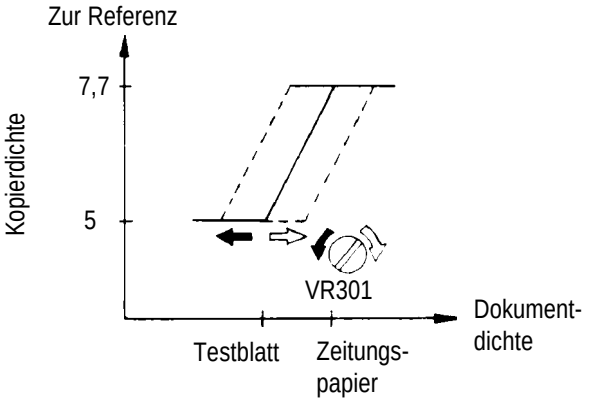

Abb. 2 - 23

7) Die Taste Sortieren / Gruppieren betätigen.
   Die Belichtungslampe schaltet sich aus und der Schlitten kehrt zur Heimposition zurück.
8) Das Testblatt entfernen, eine Zeitung auf das Vorlagenglas legen und den Vorlagendeckel schließen.
9) Die Taste Sortieren / Gruppieren betätigen.
   Der Kopierer führt den in Schritt 5) beschriebenen Vorgang aus.
10) Den im Display angezeigten Wert notieren.
11) Die Taste Sortieren / Gruppieren betätigen.
    Im Display erscheint „0“.
12) Die Taste „1“ am Bedienfeld betätigen.
    Im Display erscheint „1“.
13) Den in Schritt 10) notierten Wert über die Zehner-Tastatur eingeben.

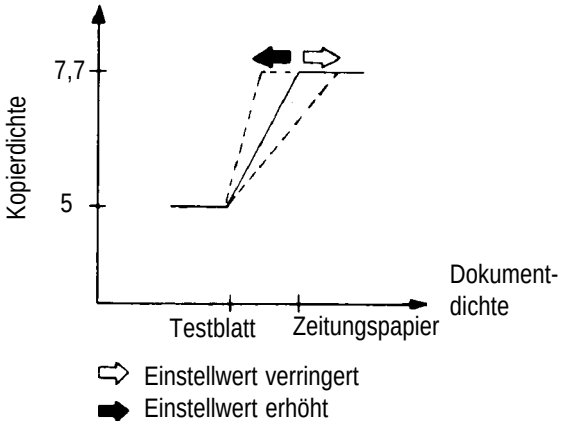

Abb. 2 - 24

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3. Prüfen der Fotounterbrecher

Nr.	Q1	Q2	Q3
Sensor	Papiersensor, Universaleinzug (MFPD)	Zeitwalzensensor (TDP1)	Schlitten-Heimpositionssensor (SCHP)
(+)-Prüfspitze (-)-Prüfspitze	J312-5 J312-4	J312-2 J312-1	J317-4 J317-3
Prüfvorgang: Die Messung erfolgt mit dem Multimeter an den entsprechenden Steckerpins	Den Sensorarm bei eingeschaltetem Kopierer manuell heben und senken. • Arm angehoben: Spannung ca. 5 V • Arm abgesenkt: Spannung ca. 0 V	Den Sensorarm bei eingeschaltetem Kopierer manuell heben und senken. • Arm angehoben: Spannung ca.5 V • Arm abgesenkt: Spannung ca. 0 V	Bei eingeschaltetem Kopierer den Schlitten mit der Hand bewegen. • Schlitten in Heimposition: Spannung ca. 5 V • Schlitten nicht in Heim. position: Spannung ca. 0 V

Nr.	Q4	Q5	Q11
Sensor	Objektiv-Heimpositionssensor (LHP)	Ausgabesensor (PDP2)	Papiersensor der Kassette (CPEP)
(+)-Prüfspitze (-)-Prüfspitze	J317-7 J317-6	J313-3 J313-4	J303-6 J303-5
Prüfvorgang: Die Messung erfolgt mit dem Multimeter an den entsprechenden Steckerpins	Bei eingeschaltetem Kopierer ein Blatt Kopierpapier in den Bereich von Q4 führen. • Papier bei Q4: Spannung ca. 5 V • Kein Papier bei Q4: Spannung ca. 0 V	Die Ausgabeabdeckung bei eingeschaltetem Kopierer entfernen und den Sensorarm manuell heben und senken. • Arm angehoben: Spannung ca. 0 V • Arm abgesenkt: Spannung ca. 5 V	Bei eingeschaltetem Kopierer die Kassette herausziehen und den Sensorarm manuell heben und senken. • Arm angehoben: Spannung ca. 5 V • Arm abgesenkt: Spannung ca. 0 V

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KAPITEL 3

FEHLERSUCHE BEI BILDFEHLERN

I. Einleitende Prüfungen . . . . . 3 - 1
II. Beispiele von Bildfehlern . . . . . 3 - 3
III. Fehlersuche bei Bildfehlern . . . . . 3 - 6

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I. Einleitende Prüfungen

1. Prüfen der Umgebungsbedingungen

a. Die Netzspannung sollte innerhalb von 10 % der auf dem Typenschild angegebenen Spannung liegen.
b. Die Luftfeuchtigkeit und Temperatur am Aufstellungsort sollte keine extremen Werte aufweisen (z. B. in der Nähe eines Waschbeckens oder eines Luftbefeuchters). Eine Aufstellung in kalten Räumen, in der Nähe offener Flammen oder in staubigen Umgebungen ist zu vermeiden.
c. Im Aufstellungsraum darf kein Ammoniakgas erzeugt werden (z. B. durch Diazokopierer etc.).
d. Der Kopierer darf nicht dem direkten Sonnenlicht ausgesetzt sein. Ist eine Aufstellung am Fenster nicht zu vermeiden, sollten Vorhänge angebracht werden.
e. Der Raum sollte gut belüftet sein.
f. Die Stellfläche des Kopierers muß eben sein.

2. Prüfen der Originale

Zunächst ist zu prüfen, ob der Bildfehler durch eine ungeeignete Vorlage entstanden ist.

a. Die Helligkeitseinstellung am Kopierer sollte normalerweise auf 4,5 ± 1,5 eingestellt sein.
b. Vorlagen mit farbigem Hintergrund, z. B. gelb, bewirken einen schwachen Kontrast auf der Kopie.
c. Die generelle Druckdichte der Vorlage prüfen.

Beispiele:
Vorlagen aus Diazokopierern oder Transparentvorlagen → Die Kopien neigen zu Verschleierungen.

Bleistiftbeschriebene Vorlagen → Die Kopien neigen zu erhöhter Helligkeit und schwachem Kontrast.

3. Prüfen des Vorlagendeckel und Vorlagenglasses

Ist der Deckel oder das Glas verschmutzt, sollte es mit einem milden Reinigungsmittel oder Alkohol gesäubert werden. Bei Beschädigungen oder Kratzern sind die entsprechenden Teile zu ersetzen.

4. Prüfen der Korona-Einheiten

a. Die Korona-Einheiten zunächst auf Verunreinigungen oder Beschädigungen (z. B. Kratzer auf den Drähten) prüfen.
b. Die Koronadrähte und Abschirmplatten der jeweiligen Korona-Einheit reinigen (ist die Reinigung nicht möglich, sind die entsprechenden Teile zu ersetzen).
c. Die korrekte Installation der jeweiligen Korona-Einheit überprüfen.
d. Die Spannfedern der Korona-Drähte auf Korrosion überprüfen.

5. Prüfen der Transferführungen

Verunreinigte Transfer- oder Transportführungen mit einem feuchten Tuch reinigen.

6. Die Fixiereinheit überprüfen

7. Die Entladungseinrichtung überprüfen

8. Das verwendete Kopierpapier überprüfen

a. Wird von Canon empfohlenes Papier verwendet?
b. Ist das Kopierpapier übermäßig feucht? Eine neue Packung Papier öffnen und Kopien erstellen. Die Ergebnisse vergleichen.

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9. Sonstiges

Wird der Kopierer aus einer kalten Umgebung in einen warmen Raum gebracht (z. B. im Winter), kann sich innerhalb des Kopierers Kondensation bilden. Dadurch können verschiedene Probleme entstehen.
Beispiele von Kondensationsproblemen:

a. Kondensation im Bereich des Schlittens (Objektiv, Spiegel etc.) führt zu hellen Kopien.
b. Ist die lichtempfindliche Trommel zu kalt (der elektrische Widerstand der OPC-Beschichtung ist zu hoch), führt dies zu schwachem Kontrast.
c. An den Korona-Einheiten können Kriechströme auftreten.
d. Kondensation an der Einzugswalze und den Papierführungen kann zu Staus oder fehlerhaften Einzügen führen.
e. Die Haftung der Einzugswalze im manuellen Einzug ist herabgesetzt und führt zu unbefriedigenden Papiereinzügen.
   Falls Kondensation im Kopierer auftritt, ist der Kopierer ca. 10 bis 20 Minuten eingeschaltet zu lassen.
   Wird eine originalversiegelte und -verpackte Tonerpatrone aus einem kalten Raum in eine warme Umgebung gebracht und sofort eingesetzt, bildet sich Kondensation, die zu verschiedenen Bildproblemen führt. Der Kunde ist deshalb darauf hinzuweisen, daß nur Tonerpatronen eingesetzt werden dürfen, die sich der Raumtemperatur angeglichen haben. Dies kann, je nach Temperaturunterschied, ein und zwei Stunden dauern.

   Treten weiterhin Bildfehler, wie z. B. ungleiche Dichte (Helligkeitsunterschiede zwischen nahen und entfernten Stellen der Kopie auf), zu hohe Helligkeit oder Schleierbildung auf, sind zunächst die Justageschritte aus „Grundlegende Bildjustage“ durchzuführen.

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II. Beispiele von Bildfehlern

1. Zu helles Bild (nur Halbtonbereiche)

2. Zu helles Bild
(auch in den schwarzen Bereichen)

7. Dunkle Linien in Papiertransportrichtung
(relativ breit)

8. Dunkle Linien in Papiertransportrichtung
(relativ schmal)

13. Verunreinigte Rückseite

14. Fehlerhafte Fixierung

19. Breite, dunkle Linie
(entgegen der Transportrichtung)

20. Unschärfe (fehlerhafte Fokusierung)

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3. Zu helles Bild (generell zu hell)

4. Ungleiche Druckdichte
(Vorderseite zu dunkel)

9. Dunkle Linien
(dünne Linien in Papiertransportrichtung)

10. Weiße Streifen**
(in Papiertransportrichtung)*

15. Fehlerhafter, vorderer Rand
(bildfreier Bereich viel zu groß)

16. Fehlerhafter, vorderer Rand
(freier Bereich zu groß)

21. Kein Bild

22. Völlig Schwarz

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5. Ungleiche Druckdichte (Vorderseite zu hell)

6. Verschleierung (überall)

11. Schmale, weiße Linien (in Papiertransportrichtung)*

12. Weiße Streifen** (entgegen der Papiertransportrichtung)*

17. Fehlerhafter, vorderer Rand (kein freier Bereich)

18. Verzerrtes Bild

Hinweis:
Die Bildbeispiele wurden im Direkt-Modus mit dem NB-3-Testblatt erstellt. Die gezeigten Bildfehler wurden absichtlich herbeigeführt. Da die hier gezeigten Beispiele außerdem auf 19 % ihrer ursprünglichen Größe verkleinert wurden, können die in der Praxis auftretenden Bildfehler von den hier gezeigten Fehlern abweichen.

* Erstellt mit angehobenem Vorlagendeckel; der Fehler tritt auch auf normalen Kopien auf.
** Die Breite der Streifen kann variieren.

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III. Fehlersuche bei Bildfehlern

1. Zu helles Bild (nur Halbtonbereiche)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Verbessert sich die Bildqualität nach einer grundlegenden Bildjustage?	Ja	Ende.
AE-Justage	2	Tritt der Bildfehler nur im AE-Modus auf?	Ja	Eine AE-Justage durchführen.
Schwarztoner-Entwicklungseinheit	3	Tritt der Bildfehler nur im Zusammenhang mit der Schwarztoner-Entwicklungseinheit auf?	Ja	Prüfen, ob die Pins J39-1 und J39-4 der Schwarztoner-Entwicklungseinheit mit einer Steckbrücke verbunden sind. Ist dies nicht der Fall, den Fehler beheben.
Objektiv, Staub-Kontrollglas	4	Verbessert sich die Bildqualität nach Reinigung von Objektiv, Staub-Kontrollglas und Spiegel?	Ja	Ende.
Lichtempfindliche Trommel			Nein	Die Tonerpatrone (Trommel) ersetzen.

2. Zu helles Bild (auch in dunklen Bereichen)
3. Zu helles Bild (generell zu hell)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Verbessert sich die Bildqualität nach einer grundlegenden Bildjustage?	Ja	Ende.
	2	Den Kopierer während eines Kopiervorgangs ausschalten und die Vordertür öffnen. Erscheint das Tonerbild auf der Oberfläche der lichtempfindlichen Trommel (vor dem Transfer) normal?	Nein	Mit den Schritten 6 und 7 fortfahren.

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Mögliche Ursache		Schritt	Prüfung	Ergebnis	Maßnahme
Fehlerhafter Transfer	Transfer-korona-Einheit	3	Sind die Korona- und Gitterdrähte der Transfer-korona-Einheit korrekt installiert und ist die Höhe des Koronadrahtes normal?	Nein	• Die Koronadrähte ordnungsgemäß installieren. • Die Höhe der Koronadrähte justieren. • Die Koronadrähte reinigen. • Die Korona-Einheit ordnungsgemäß installieren.
	Kopierpapier	4	Verbessert sich die Bildqualität, wenn frisches Kopierpapier verwendet wird?	Ja	• Das Kopierpapier hat Feuchtigkeit aufgenommen. Dem Kunden Aufbewahrungsempfehlungen geben. • Dem Kunden raten, eine von Canon empfohlene Papiersorte zu verwenden.
	Untere Transfer führungsplatte Varistor	5	Beträgt der Widerstand zwischen dem Metallteil der unteren Transferführung und der Transporteinheit 0 Ω?	Ja	• Prüfen, ob die Führungsplatte der Transfereinheit in Kontakt mit der Feder der Transporteinheit kommt. • Den Varistor ersetzen.
	Hochspannungstransformator, DC-Controller-PCB			Nein	Das Hochspannungsnetzteil und den DC-Controller-PCB überprüfen.
Fehlerhafte Entwicklung	Andruck mechanismus der Entwicklungseinheit	6	Wird die Entwicklungswalze der Entwicklungseinheit gegen die lichtempfindliche Trommel gedrückt?	Nein	Den Andruckmechanismus der Entwicklungseinheit überprüfen.
	Tonermenge innerhalb der Entwicklungseinheit	7	Ist die Oberfläche des Entwicklungszylinders gleichförmig mit Toner bedeckt?	Nein	• Liegt das Problem an der Schwarztoner-Entwicklungseinheit, siehe Unterpunkt „Die Meldung ADD TONER“ erscheint nicht. • Liegt das Problem an der Farbtoner-Einheit, die Farbtoner-Einheit ersetzen.
	Entwicklungsvorspannung			Ja	Prüfen, ob die Entwicklungsvorspannung ordnungsgemäß an den Entwicklungszylinder angelegt wird.

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4. Ungleiche Druckdichte (Vorderseite zu dunkel)
5. Ungleiche Druckdichte (Vorderseite zu hell)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Höhe des Primärkorona-Drahtes	1	Verbessert sich die Bildqualität nach Durchführung der grundlegenden Bildjustage?	Ja	Ende.
Entwicklungseinheit	2	Wird die Distanzrolle der Entwicklungseinheit gegen die lichtempfindliche Trommel gedrückt?	Nein	Den Andruckmechanismus der Entwicklungseinheit prüfen.
Verunreinigung im Schlittenbereich	3	Verbessert sich die Bildqualität nach Reinigung der Belichtungslampe, Reflektoren, Seitenreflektoren, des Objektivs und des Staub-Kontrollglases?	Ja	Ende.
Vorbelichtungslampe	4	Schalten sich die Vorbelichtungslampen während des Kopiervorgangs ein?	Nein	• Die Vorbelichtungslampeneinheit ersetzen. • Den DC-Controller-PCB ersetzen.
Entwicklungseinheit	5	Ist die Oberfläche des Entwicklungszylinders gleichmäßig mit Toner bedeckt?	Nein	• Die Abstreiferkante der Entwicklungseinheit prüfen. • Im Falle der Schwarztoner-Entwicklungseinheit die Oberfläche des Entwicklungszylinders mit einem trockenen Tuch abwischen. • Im Falle der Farbtoner-Einheit, die Farbtoner-Einheit zurück in den Aufbewahrungsbehälter legen und kräftig schütteln. Verbessert sich die Bildqualität nicht, die Farbtoner-Einheit ersetzen.
Korona-Einheit und Kopierpapier			Ja	• Alle Koronadrähte erneut reinigen. Danach erneut die Position der jeweiligen Koronadrähte überprüfen. • Eine andere Papiersorte verwenden.

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6. Schleierbildung (überall)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Verbessert sich die Bildqualität nach Durchführung der grundlegenden Bildjustage?	Ja	Ende.
Verunreinigung im Schlittenbereich	2	Verbessert sich die Bildqualität nach Reinigung der Belichtungslampe, der Reflektoren, Spiegel, des Objektivs und des Staub-Kontrollglases?	Ja	Ende.
Vorbelichtungslampen	3	Schalten sich die Vorbelichtungslampen während des Kopiervorgangs ein?	Nein	• Die Vorbelichtungslampen-Einheit ersetzen. • Den DC-Controller-PCB ersetzen.
DC-Controller-PCB	4	Das Multimeter auf den 30 V DC-Bereich einstellen und die Spannung zwischen J307-6 (+) und J307-7 (-) am DC-Controller-PCB messen. Beträgt die Spannung 10 V oder weniger während des Kopiervorgangs und 16 V zu sonstigen Zeiten?	Nein	Den DC-Controller-PCB ersetzen.
Hochspannungstransformator	5	Beträgt die Spannung zwischen J307-5 (+) und J307-7 (-) am DC-Controller-PCB während des Kopiervorgangs ca. 0,6 V und 14 V zu sonstigen Zeiten?	Ja	• Den Hochspannungtransformator ersetzen. • Die Tonerpatrone (Trommel) ersetzen.
DC-Controller-PCB			Nein	Den DC-Controller-PCB ersetzen.

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7. Schleierbildung in Papiertransportrichtung
8. Dunkle Linien (breite Linien in Papiertransportrichtung)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Primärkorona-Einheit	1	Verbessert sich die Bildqualität nach Reinigung der Koronadrähte, der Gitterdrähte und des Koronarahmens?	Ja	Ende.
Schlittenbereich	2	Verbessert sich die Bildqualität nach Reinigung von Belichtungslampe, Reflektoren, Objektiv, Spiegel und Staub-Kontrollglas?	Ja	Ende.
Vorbelichtungslampen	3	Leuchten die Vorbelichtungslampen heller, nachdem sie gereinigt wurden?	Ja	Ende.
Transportwalze	4	Beträgt die Breite des schwarzen Streifens ca. 10 mm?	Ja	Die unterhalb der Entwicklungseinheit liegende Transportwalze reinigen.

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9. Dunkle Linien (dünne Linien in Papiertransportrichtung)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Eine Kopie erstellen und den Kopierer ausschalten, sobald sich das Papier auf der Transporteinheit befindet. Sind die schwarzen Linien auf der Kopie sichtbar, bevor das Papier die Fixiereinheit erreicht?	Nein	Mit Schritt 3 fortfahren.
Lichtempfindliche Trommel	2	Befinden sich Kratzer oder schwarze Linien auf oder im Umgebungsbereich der lichtempfindlichen Trommel (die Trommeloberfläche behutsam mit einem Flanelltuch abwischen, falls schwarze Linien erkennbar sind. Verschwinden die schwarzen Linien auf den Kopien?).	Ja	Die Tonerpatrone (Trommel) ersetzen (falls die Trommeloberfläche Kratzer aufweist, vor dem Austausch der Trommel zunächst die Ursache des Problems beheben).
Entwicklungssystem; Belichtungssystem			Nein	Das Entwicklungs- und Belichtungssystem überprüfen.
Fixiereinheit	3	Befinden sich Kratzer oder schwarze Lilnien auf oder im Umgebungsbereich der oberen Fixierwalze?	Ja	• Die obere Fixierwalze ersetzen. • Die Separationsklauen und das Fixierungsblatt ersetzen.
			Nein	Den Einlaß der Fixiereinheit auf Verunreinigungen untersuchen.

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10.Weiße Streifen (in Papiertransportrichtung)
11. Dünne, weiße Linien (in Papiertransportrichtung)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Fixiereinheit	1	Den Vorlagendeckel öffnen und die Start-Taste betätigen. Anschließend den Kopierer ausschalten, sobald sich das Kopierpapier auf der Transporteinheit befindet. Befinden sich die weißen Streifen oder dünnen Linen bereits auf der Kopie, bevor das Papier die Fixiereinheit erreicht?	Nein	• Die obere und untere Einlaßführung der Fixiereinheit reinigen. • Die obere Fixierwalze überprüfen. • Die Separationsklauen und das Fixierungsblatt reinigen und prüfen.
Primärkorona-Einheit	2	Verbessert sich die Bildqualität nach Reinigung von Koronadrähten, Gitterplatte und Rahmen der Primärkorona-Einheit?	Ja	Die Koronadrähte mit einem trockenen, faserfreien Papier und anschließend mit Alkohol reinigen, ist dies nicht möglich, die Koronadrähte ersetzen.
Entwicklungseinheit	3	Ist die Oberfläche des Entwicklungszylinders gleichmäßig mit Toner bedeckt?	Nein	• Liegt das Problem an der Schwarztoner-Entwicklungseinheit? Die Abstreiferkante überprüfen. Befindet sich kein Toner in der Entwicklungseinheit, siehe Unterpunkt „Die Anzeige ADD TONER geht nicht an“. • Im Falle der Farbtonereinheit, die Einheit zurück in den Aufbewahrungsbehälter legen und kräftig schütteln. Falls sich die Bildqualität nicht verbessert, die Einheit ersetzen.
Kopierpapier	4	Verbessert sich die Bildqualität, wenn frisches Kopierpapier verwendet wird?	Ja	Das Papier hat möglicherweise Feuchtigkeit aufgenommen. Dem Kunden Aufbewahrungsempfehlungen geben.

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Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Lichtempfindliche Trommel	5	Befinden sich Kratzer auf oder im Umgebungsbereich der lichtempfindlichen Trommel?	Ja	Die Tonerpatrone (Trommel) ersetzen (bei Kratzern auf der Trommeloberfläche zunächst die Ursache dafür beheben).
Streulicht von außen			Nein	Prüfen, ob von außen kommenden Streulicht auf die lichtempfindliche Trommel einwirkt.
Transferkorona-Einheit	6	Verbessert sich die Bildqualität nach Reinigung der Koronadrähte und des Rahmens der Transferkorona-Einheit?	Ja	Ende.
	7	Verbessert sich die Bildqualität nach Reinigung der Entladungseinrichtung?	Ja	Ende.

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12. Weiße Streifen (quer zur Papiertransportrichtung)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Entwicklungs-einheit	1	Erscheinen die weißen Streifen in Intervallen von ca. 63 mm (Kratzer auf dem Entwicklungszylinder)?	Ja	• Die Distanzrollen des Entwicklungszylinders reinigen. • Die Oberfläche des Entwicklungszylinders reinigen. • Falls Kratzer auf dem Entwicklungszylinder erkennbar sind, den Entwicklungszylinder oder die Farbtonereinheit ersetzen.
Lichtempfindliche Trommel	2	Erscheinen die weißen Streifen in Intervallen von ca. 94 mm (Kratzer auf der lichtempfindlichen Trommel)?	Ja	• Die Trommeloberfläche reinigen. • Bei Kratzern die Tonerpatrone (Trommel) ersetzen.
Kopierpapier	3	Verbessert sich die Bildqualität, wenn frisches Kopierpapier verwendet wird?	Ja	Das Papier hat möglicherweise Feuchtigkeit aufgenommen. Dem Kunden Aufbewahrungsempfehlungen geben.
Schlittenschiene, Schlittenseil	4	Treten die weißen Streifen bei allen Kopien an der gleichen Stelle auf?	Ja	• Den Umgebungsbereich des Schlittenseils auf Fremdkörper überprüfen. • Die Spannung des Schlittenseils justieren.
Verunreinigte Koronadrähte			Nein	Alle Koronaeinheiten (Drähte und Rahmen) reinigen.

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13. Tonerverunreinigungen auf der Rückseite des Kopierpapiers

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Eine Kopie erstellen und den Kopierer ausschalten, wenn sich das Kopierpapier in der Transporteinheit befindet. Sind bereits Tonerverunreinigungen auf der Rückseite des Kopierpapiers erkennbar?	Nein	Mit Schritt 3) fortfahren.
Entwicklungseinheit	2	Erscheinen die Tonerverunreinigungen in Intervallen von ca. 50 mm?	Ja	• Die Zeitwalze und Führung der Transfereinheit reinigen. • Prüfen, ob Toner aus der Entwicklungseinheit austritt.
Fixiereinheit	3	Sind obere oder untere Fixierwalze verschmutzt?	Ja	• Die obere und untere Fixierwalze reinigen. • Prüfen, ob die Ölwalze mit Toner verunreinigt ist. Ist die Walze extrem verschmutzt, ersetzen.
			Nein	Die Ausgabewalzen, Separationsklauen und Papierführung der Fixiereinheit reinigen.

14. Fehlerhafte Fixierung

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Obere und untere Entwicklungswalzen	1	Tritt die fehlerhafte Fixierung in Papiertransportrichtung auf?	Ja	Die obere und untere Fixierwalze auf Kratzer untersuchen.
Fixierwalzenheizung (H1)	2	Schaltet sich die Fixierwalzenheizung (H1) unmittelbar nach Einschalten des Kopierers ein?	Nein	Siehe Unterpunkt „Die Fixierwalzenheizung schaltet nicht ein“.
Anpressdruck der unteren Fixierwalze	3	Liegt der Anpressdruck im Standardbereich?	Nein	Den Anpressdruck justieren.
Kopierpapier			Ja	Prüfen, ob von Canon empfohlenes Papier verwendet wird. Dem Kunden raten, eine von Canon empfohlene Papiersorte zu verwenden.

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15.
16. Falsche Größe des vorderen Randes
17.

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Original	1	Liegt das Original richtig auf dem Vorlagenglas?	Nein	Das Original richtig auflegen.
Kopierpapier	2	Wird von Canon empfohlenes Kopierpapier verwendet?	Nein	Dem Kunden raten, eine entsprechende Papiersorte zu verwenden.
Einzugswalze	3	Ist die Einzugswalze durch Papierstaub etc. verunreinigt?	Ja	• Die Einzugswalze reinigen. • Die Gesamtzahl der Einzugsvorgänge prüfen. Liegt sie bei ca. 100.000, die Einzugswalze ersetzen.
Einstellung des Bildrandes	4	Ist der Fehler nach Einstellung des bildfreien, vorderen Bereiches behoben?	Ja	Ende.
Zeitwalzen ; Zeitwalzenkupplung	5	Das Multimeter auf den 30 V DC-Bereich einstellen und die Spannung zwischen J308-3 (+) und J308-4 (-) auf dem DC-Controller-PCB messen. Beträgt sie während des Kopiervorgangs max. 24 V und sonst ca. 0 V ?	Ja	• Die Zeitwalzen auf Deformation und Abnutzung überprüfen. • Die Verkabelung vom DC-Controller-PCB zur Zeitwalzenkupplung überprüfen. Ist sie in Ordnung, die Zeitwalzenkupplung ersetzen.
DC-Controller-PCB			Nein	Den DC-Controller-PCB ersetzen.

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18. Verzerrtes Bild

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Schlittenantriebs-seil	1	Überlappt sich das Seil auf der Antriebsrolle während der Schlittenbewegung? Ist die Seilspannung ab-wechselnd zu gering und danach zu hoch?	Ja	• Das Seil erneut spannen. • Ist das Seil ausgefranst oder verdrillt, ersetzen.
Schlittenschiene	2	Läßt sich der Schlitten gleichmäßig mit der Hand bewegen?	Nein	Das Schlittenseil mit Alkohol reinigen und anschließend Öl von geringer Viskosität auf-tragen.
Schlittenantriebs-system	3	Hat sich ein Zahnrad des Schlittenantriebssystems gelöst?	Ja	Das Zahnrad ersetzen.
Lichtempfindliche Trommel	4	Tritt die Verzerrung in Intervallen von ca. 95 mm auf?	Ja	• Das Trommelantriebsgetriebe überprüfen. • Die Enden der Trommel (die Kontaktstellen der Distanz-rollen) auf Kratzer / Unebenheiten überprüfen.
Antriebssystem der Entwicklungs-einheit	5	Tritt die Verzerrung in Intervallen von ca. 63 mm auf?	Ja	Die Entwicklungseinheit überprüfen.
Antriebssystem der Trommel			Nein	Die Trommelantriebseinheit überprüfen.

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19. Breite, dunkle Linien (quer zur Papiertransportrichtung)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Befinden sich die dunklen Linien bei jeder Direkt-Kopie an der gleichen Stelle?	Ja	Mit Schritt 4 fortfahren.
Regulator der Belichtungslampe	2	Flackert die Belichtungslampe während der Schlittenbewegung?	Ja	Die Belichtungslampe und den Lampenregulator überprüfen.
Schwarztoner-Entwicklungseinheit und Farbtonereinheit	3	Sind die dunklen Linien auf Schwarzkopien anders als auf Farbkopien?	Ja	Die Tonerbeschichtung des Entwicklungszylinders der Entwicklungseinheit überprüfen, bei der der Fehler auftritt.
Schlitteneinheit	4	Ändert sich die Position der dunklen Linien, wenn eine verkleinerte Kopie mit einer Direkt-Kopie verglichen wird?	Ja	Die Schlitteneinheit überprüfen.
Papiertransporteinheit			Nein	Die Papiertransporteinheit überprüfen.

20. Unscharfe (unfokusiertes) Bild

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Original	1	Liegt das Original ordnungsgemäß auf dem Vorlagenglas?	Nein	• Prüfen, ob das Original in einer Klarsichtfolie liegt. • Dem Kunden das Auflegen von Originalen erklären.
Vorlagenglas	2	Ist das Vorlagenglas durch Fingerabdrücke oder andere Substanzen verschmutzt?	Ja	Das Vorlagenglas reinigen.
Objektiv-Antriebseinheit	3	Das Gerät aus- und wieder einschalten. Bewegt sich das Objektiv gleichmäßig?	Nein	Die Objektiv-Antriebseinheit überprüfen.
Spiegelposition	4	Liegt der horizontale Kopiermaßstab bei einer Direkt-Kopie im Standardbereich?	Nein	Den Abstand zwischen Spiegelhalterung Nr. 1 und Nr. 2 einstellen.
Verunreinigung im Schlittenbereich			Ja	Die Belichtungslampe, Reflektoren, Spiegel, das Objektiv und Staub-Kontrollglas reinigen.

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21. Kein Bild

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Trommeleinheit	1	Ist eine Trommeleinheit eingesetzt?	Nein	Die Trommeleinheit einsetzen.
Entwicklungseinheit	2	Ist eine Entwicklungseinheit eingesetzt?	Nein	Die Entwicklungseinheit einsetzen.
Trommel-Antriebseinheit	3	Rotiert die lichtempfindliche Trommel während des Kopiervorgangs?	Nein	• Prüfen, ob die lichtempfindliche Trommel gleichmäßig rotiert. • Die Trommel-Antriebseinheit überprüfen.
DC-Controller-PCB	4	Das Multimeter auf den 30 V DC-Bereich einstellen und die Spannung zwischen J307-1 (+) (Gittervorspannung ein) und J307-7 (-) auf dem DC-Controller-PCB messen. Beträgt die Spannung während des Schlittenvorlaufs ca. 15 V und sonst 0 V ?	Nein	Den DC-Controller-PCB ersetzen.
Hochspannungstransformator (HVT)			Ja	Den Hochspannungstransformator (HVT) ersetzen.

22. Völlig Schwarz

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Schaltet sich die Belichtungslampe während des Kopiervorgangs ein?	Nein	Die Prüfschritte aus „Die Belichtungslampe schaltet sich nicht ein“ durchführen.

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KAPITEL 4
BETRIEBSSTÖRUNGEN

I. Fehlersuche bei Betriebsstörungen . . . . . 4 - 1

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I. Fehlersuche bei Betriebsstörungen

1. Fehlermeldung „E000“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Die Anzeige von E000 löschen. Die Frontabdekkung und Ausgabetür öffnen, die Türschalterunterbrechung einsetzen und ein Blatt Papier in den Ausgabesensor klemmen. Das Gerät einschalten. Schaltet die Fixierwalzenheizung auf ein (Sichtprüfung)?	Nein	Siehe Abschnitt „Die Fixierheizung schaltet nicht ein“.
Thermistor (TH)	2	Ist das Problem nach dem Austausch des Thermistors (TH1) behoben?	Nein	Den DC-Controller-PCB ersetzen.
			Ja	Ende.

2. Fehlermeldung „E001“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Die Meldung E001 löschen. Schaltet sich die Fixierwalzenheizung direkt nach dem Einschalten des Gerätes ein?	Nein	Siehe Abschnitt „Die Fixierwalzenheizung schaltet nicht ein“.
Thermistor (TH)	2	Ist das Problem durch den Austausch des Thermistors (TH1) behoben?	Ja	Ende.
DC-Controller-PCB, AC-Treiber / DC-Netzteil-PCB			Nein	Den AC-Treiber-PCB / DC-Netzteil-PCB oder DC-Controller-PCB ersetzen.

3. Fehlermeldung „E030“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Funktioniert das Gesamtkopienzählwerk normal?	Nein	Siehe Abschnitt „Das Kopienzählwerk funktioniert nicht“.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

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4. Fehlermeldung „E202“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Das Gerät ausschalten, das Vorlagenglas ausbauen und den Schlitten manuell ganz nach rechts bewegen. Das Gerät einschalten. Bewegt sich der Schlitten zurück?	Nein	Siehe Abschnitt „Keine Schlittenbewegung“.
	2	Das Gerät ausschalten und den Schlitten manuell ganz nach links bewegen. Das Gerät einschalten. Bewegt sich der Schlitten nach der Objektivbewegung geringfügig nach vorne?	Nein	Siehe Abschnitt „Keine Schlittenbewegung“.
Schlitten-Heimpositionssensor (Q3)	3	Funktioniert der Schlitten-Heimpositionssensor (Q3) normal? (Siehe Seite 2 - 10)	Nein	Die Verkabelung vom DC-Controller-PCB nach Q3 überprüfen. Ist sie in Ordnung, den DC-Controller-PCB ersetzen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

5. Fehlermeldung „E210“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Das Gerät einschalten. Bewegt sich das Objektiv nach links?	Ja	Mit Schritt 2) fortfahren.
			Nein	Siehe Abschnitt „Keine Objektivbewegung“.
Objektiv-Heimpositionssensor (Q4)	2	Funktioniert der Objektiv-Heimpositionssensor (Q4) normal? (Siehe Seite 2 - 10)	Nein	Die Verkabelung zwischen DC-Controller-PCB und Q4 überprüfen. Ist sie in Ordnung, Q4 ersetzen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

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6. Fehlermeldung „E220“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Belichtungslampe (LA1)	1	Leuchtet die Belichtungslampe (LA1) während des Kopiervorgangs?	Ja	Siehe Abschnitt „Die Belichtungslampe leuchtet nicht“.
Lampenregulator	2	Leuchtet die Belichtungslampe (LA1) bei Kopierbereitschaft?	Ja	Den DC-Controller-PCB ersetzen.
DC-Controller-PCB			Nein	Den Lampenregulator ersetzen.

7. Fehlermeldung „E261“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
AC-Treiber / DC-Netzteil-PCB	1	Ist das Problem nach Austausch des AC-Treiber-PCB / DC-Netzteil-PCB behoben?	Ja	Ende.
DC-Controller-PCB			Nein	Den DC-Controller-PCB ersetzen.

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8. Fehlermeldung „E400“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Den Kopierer aus- und wieder einschalten. Ist das Problem behoben?	Ja	Ende (die Verkabelung zwischen DC-Controller und ADF-Controller überprüfen).
Stromkreisunterbrecher (CB2)	2	Den Stromkreisunterbrecher CB2 am ADF-Controller-PCB drücken. Ist das Problem behoben?	Ja	Ende (die Ursache für das Ansprechen von CB2 fest stellen).
	3	Das Multimeter auf den 12 V DC-Bereich einstellen und die Prüfspitzen mit J10-3 (+) und J10-2 (-) am ADF-Controller-PCB anschließen. Beträgt die Spannung ca. 5 V?	Ja	Mit Schritt 6) fortfahren.
3-poliges (5 V) Netzteil	4	Das Multimeter auf den 30 V DC-Bereich einstellen und die Prüfspitzen mit J9-1 (+) und J9-2 (-) am ADF-Controller-PCB anschließen. Beträgt die Spannung ca. 24 V?	Ja	Den Unterbrecher CB2 auf ordnungsgemäßen Durchlaß prüfen, ist dies der Fall, daß 3-polige (5 V) Netzteil ersetzen.
ADF-Netzteil	5	Das Multimeter auf den 30 V DC-Bereich einstellen und die Prüfspitzen mit J70-2 (+) und J70-4 (-) verbinden. Beträgt die Spannung ca. 24 V?	Nein	Das ADF-Netzteil ersetzen.
Verkabelung			Ja	Die Verkabelung zwischen ADF-Netzteil und ADF-Controller prüfen.
DC-Controller-PCB	6	Ist das Problem nach Austausch des DC-Controller-PCBs oder des ADF-Controller-PCBs behoben?	Ja	Ende.
ADF-Controller-PCB			Nein	Das Kabel zwischen DC-Controller-PCB und ADF-Controller-PCB ersetzen.

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9. Fehlermeldung „E500“

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Verkabelung	1	Den Kopierer aus- und wieder einschalten. Ist das Problem behoben?	Ja	Ende. (die Verkabelung zwischen DC-Controller-PCB und Sorter-Controller-PCB überprüfen).
Stromkreisunterbrecher (CB1)	2	Den Stromkreisunterbrecher (CB1) auf dem Sorter-Controller-PCB zurücksetzen? Ist das Problem behoben?	Ja	Ende. (die Ursache für das Ansprechen von CB1 feststellen).
	3	Das Multimeter auf den 30 V DC-Bereich und die Prüfspitzen mit J2-1 (+) und J2-3 (-) am Sorter-PCB verbinden. Beträgt die Spannung ca. 24 V?	Ja	Mit Schritt 6) fortfahren.
Sicherung	4	Ist die Sicherung im Sorter-Netzteil normal?	Nein	Die Sicherung ersetzen.
Netzteil-PCB des Sorters	5	Das Multimeter auf den AC-Bereich zum Messen von Netzspannung einstellen. Die Prüfspitzen mit J106-1 (+) und J106-2 (-) verbinden. Wird die reguläre Netzspannung zugeführt?	Ja	Das Sorter-Netzteil ersetzen.
Kabel zwischen Sorternetzteil und AC-Treiber			Nein	Die Verkabelung zwischen Sorter-Netzteil und AC-Treiber-PCB überprüfen.
Kommunikationskabel	6	Das Multimeter auf den X10KΩ -Bereich einstellen. Hat die Verbindung zwischen Sorter-Controller-PCB und DC-Controller-PCB Durchlaß?	Ja	Das Kabel zwischen Sorter-Controller-PCB und DC-Controller-PCB auf ordnungsgemäßen Steckerkontakt prüfen. Ist alles normal, den Sorter-Controller-PCB ersetzen.
			Nein	Das Kabel ersetzen.
DC-Controller-PCB, Sorter-Controller-PCB	7	Ist das Problem nach Austausch des Sorter- oder DC-Controller-PCBs behoben?	Ja	Ende.

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10. Keine AC-Spannung

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Netzstecker	1	Ist der Netzstecker ordnungsgemäß in der Wandsteckdose eingesteckt?	Nein	Richtig einstecken.
Türschalter	2	Sind Vordertür und Ausgabetür des Kopierers vollständig geschlossen?	Nein	Die Tür schließen.
Netzspannung	3	Liegt Netzspannung an der Wandsteckdose an?	Nein	Dem Kunden mitteilen, daß die Störungsursache nicht am Kopierer liegt.
	4	Liegt Netzspannung zwischen J101-1 und J101-2 an?	Ja	Mit Schritt 6) fortfahren.
Stromkreisunterbrecher (CB1)	5	Die Kontakte des Unterbrechers auf Durchlaß prüfen. Ist der Widerstand 0 Ω?	Nein	Die Taste am Unterbrecher drücken und erneut auf Durchlaß prüfen. Ist der Widerstand immer noch nicht 0 Ω, den Unterbrecher (CB1) ersetzen.
Netzkabel, Entstörfilter (LF1)			Ja	Das Netzkabel und den Entstörfilter (LF1) überprüfen.
Türschalter (SW2)	6	Die Kontakte des Türschalters (SW2) auf Durchlaß prüfen. Ist der Widerstand 0 bei gedrücktem Türschalter und unendlich, wenn der Türschalter freigegeben ist?	Nein	Den Türschalter (SW2) ersetzen.
Hauptschalter (SW1)	7	Die Kontakte des Hauptschalters (SW1) auf Durchlaß prüfen. Ist der Widerstand bei eingeschaltetem Schalter 0 Ω und bei ausgeschaltetem unendlich?	Nein	Den Hauptschalter (SW1) ersetzen.
Verkabelung			Ja	Die AC-Verkabelung und alle in Frage kommenden Stecker überprüfen.

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11. Keine DC-Spannung

<table>
<tr><th>Mögliche Ursache</th><th>Schritt</th><th>Prüfung</th><th>Ergebnis</th><th>Maßnahme</th></tr>
<tr><td>Überlastungs-schutzschaltung</td><td>1</td><td>Den Kopierer aus- und wieder einschalten. Ist das Problem behoben?</td><td>Ja</td><td>Ende.
(die Ursache für das Ansprechen der Schutzschaltung beheben).</td></tr>
<tr><td>AC-Netzteil</td><td>2</td><td>Liegt zwischen den Anschlüssen J110-1 und J110-3 die übliche AC-Netzspannung an?</td><td>Nein</td><td>Siehe Abschnitt „Keine AC-Spannung“.</td></tr>
<tr><td>Transformator (P1)</td><td>3</td><td>Liegt zwischen folgenden Anschlüssen am AC-Treiber / DC-Netzteil-PCB AC-Spannung an?<table><tr><th>Stecker Nr.</th><th>AC-Spannung</th></tr><tr><td>J102-1 und J102-3.</td><td>ca. 35 V AC</td></tr></table></td><td>Nein</td><td>Den Transformator ersetzen.</td></tr>
<tr><td>Sicherung (F101)</td><td>4</td><td>Ist die Sicherung (F101) auf dem AC-Treiber / DC-Netzteil-PCB durchgebrannt?</td><td>Ja</td><td>Die Ursache für das Durchbrennen der Sicherung beseitigen und anschließend die Sicherung ersetzen.</td></tr>
<tr><td>AC-Treiber / DC-Netzteil</td><td rowspan="2">5</td><td rowspan="2">Liegt zwischen folgenden Steckern am AC-Treiber / DC-Netzteil-PCB die nachfolgende Spannung an?<table><tr><th>Bereich am Multimeter</th><th>(+)-Prüfspitze</th><th>(-)-Prüfspitze</th><th>Zu messende Spannung</th></tr><tr><td>50VDC
50VDC
10VDC</td><td>J103-1
J103-6
J103-4</td><td>J103-2
J103-5
J103-3</td><td>44 V
24 V
5 V</td></tr></table></td><td>Nein</td><td>Den AC-Treiber / DC-Netzteil-PCB ersetzen.</td></tr>
<tr><td>DC-Controller-PCB</td><td>Ja</td><td>Den DC-Controller-PCB ersetzen.</td></tr>
</table>

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12. Die Trommel rotiert nicht

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Trommeleinheit	1	Die Trommel erneut einsetzen. Rotiert sie?	Ja	Ende.
Rutschkupplung	2	Befinden sich Papierfetzen oder andere Fremdkörper zwischen Trommel und Reinigungseinheit?	Ja	Die Fremdkörper entfernen.
Antriebsriemen	3	Ist der Antriebsriemen ordnungsgemäß installiert?	Nein	Den Riemen korrekt installieren.
Trommel-Antriebseinheit			Ja	Die Trommel-Antriebseinheit ausbauen und überprüfen. Die Einheit reparieren, ist die nicht möglich, ersetzen.

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13. Kein Papiereinzug aus der Kassette

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Bleibt die Anzeige eingeschaltet?	Ja	Siehe Abschnitt „Die Anzeige geht nicht aus“.
Antriebsriemen	2	Ist der Antriebsriemen ordnungsgemäß installiert?	Nein	Den Riemen ordnungsgemäß installieren.
	3	Erreicht die Vorderkante des Kopierpapiers die Zeitwalzen?	Ja	Siehe Abschnitt „Die Zeitwalzen rotieren nicht“.
Einzugswalzen	4	Die rechte Tür öffnen und den rechten Türschalter (SW4) mit der Hand drükken. Rotieren die Einzugswalzen, wenn die Start-Taste betätigt wird (Sichtprüfung)?	Ja	Die Einzugswalzen überprüfen.
Kupplungsfeder	5	Schaltet der Solenoid (SL1) der Einzugskupplung, wenn die Start-Taste betätigt wird?	Ja	Die Position des Solenoids überprüfen. Ist sie normal, die Federkupplung und den Kontrollring überprüfen. Defekte Teile ersetzen.
Solenoid (SL1) der Einzugskupplung	6	Den Kopierer ausschalten und Stecker J308 vom DC-Controller-PCB abziehen. Das Multimeter auf den 1 KΩ-Bereich einstellen und den Widerstand zwischen J308-5 und J308-6 (Solenoidverkabelung) messen. Beträgt der Widerstand ca. 165 Ω ?	Nein	Die Verkabelung vom Solenoid (SL1) der Einzugskupplung zum DC-Controller-PCB überprüfen. Ist sie normal, SL1 ersetzen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

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14. Kein Papiereinzug vom Universaleinzug

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Sensorarm	1	Ist der Arm des Zeitwalzensensors (Q2) gebrochen? Ist er leichtgängig?	Nein	Den Sensorarm ersetzen.
Zeitwalzensensor (Q2)	2	Funktioniert der Zeitwalzensensor (Q2) normal?	Nein	Den Zeitwalzensensor (Q2) ersetzen.
Kupplung des Universaleinzugs (CL2)	3	Stecker J312 vom DC-Controller-PCB abziehen und das Multimeter auf den 1 KΩ-Bereich einstellen. Die Prüfspitzen miti J312-9 und J312-10 auf Kabelseite von J-312 verbinden. Beträgt der Widerstand ca. 145 Ω?	Nein	Die Verkabelung von J312 nach CL2 überprüfen. Ist sie normal, die Kupplung des Universaleinzugs (CL2) ersetzen.
	4	Erreicht die Vorderkante des Kopierpapiers die Zeitwalzen?	Ja	Siehe Abschnitt „Die Zeitwalzen rotieren nicht“.
Zahnräder	5	Funktionieren alle Antriebszahnräder vom Hauptmotor (M1) bis zu den Zeitwalzen normal?	Nein	Die Zahnräder neu installieren oder ggf. ersetzen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

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15. Die Zeitwalzen rotieren nicht

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Riemen und Zahnräder	1	Sind alle Riemen und Zahnräder vom Hauptmotor (M1) bis zur Zeitwalzenkupplung (CL1) normal?	Nein	Die Riemen bzw. Zahnräder neu installieren, ggf. ersetzen.
Zeitwalzenkupplung (CL1)	2	Stecker J308 vom DC-Controller-PCB abziehen. Das Multimeter auf den 1 KΩ-Bereich einstellen und die Prüfspitzen mit J308-3 und J308-4 auf Kabelseite von J308 verbinden. Beträgt der Widerstand ca. 120 Ω?	Nein	Die Verkabelung von J308 nach CL1 überprüfen. Ist sie normal, die Zeitwalzenkupplung (CL1) ersetzen.
DC-Controller-PCB	3	Stecker J308 vom DC-Controller-PCB abziehen. Das Multimeter auf den 30 V DC-Bereich einstellen und die Prüfspitzen mit J308-3 (+) und J308-4 (-) verbinden. Steigt die Spannung von 0 V auf ca. 24 V, wenn die Start-Taste gedrückt wird?	Nein	Den DC-Controller-PCB ersetzen.
			Ja	Wird die Bewegung der Zeitwalze oder der Antriebszahnräder durch andere Teile behindert? Störende Bauteile aus der Umgebung entfernen.

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16. Keine Bewegung des Schlittens

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Antriebsseil	1	Ist das Schlittenseil ordnungsgemäß installiert?	Nein	Das Seil korrekt installieren.
Fremdkörper im Weg des Schlittens	2	Den Kopierer ausschalten und den hinteren Teil des Schlittens halten und vor und zurück bewegen. Läßt er sich gleichförmig bewegen?	Nein	Die Schlittenschienen auf Fremdkörper oder im Schlittenweg befindliche Objekte untersuchen. Falls notwendig, reinigen, fetten oder reparieren.
Zahnräder	3	Ist die Schlittenantriebsrolle richtig am Unterbrechungszahnrad eingerückt (siehe Abb. 4 - 1 nächste Seite)?	Nein	Die Feder zum Anheben des Unterbrechungszahnrades, das Unterbrechungszahnrad oder die Schlittenantriebsrolle auf Beschädigung untersuchen. Die Teile ggf. justieren oder ersetzen.
Schlittenmotor (M2)	4	Den Kopierer ausschalten und Stecker J302 vom DC-Controller-PCB abziehen. Das Multimeter auf den 100Ω -Bereich einstellen und den Widerstand zwischen den folgenden Stekkerpins messen. Stimmt der Widerstandswert? J302-1 (COMB) - J302-2 (B) → 6Ω J302-1 (COMB) - J302-3 (B) → 6Ω J302-4 (COMA) - J302-5 (A) → 6Ω J302-4 (COMA) - J302-6 (A) → 6Ω	Nein	Die Verkabelung von J302 zum Schlittenmotor (M2) überprüfen, ist sie in Ordnung, den Motor ersetzen.
DC-Netzteil-PCB	5	Das Multimeter auf den 50 V DC-Bereich einstellen und die Prüfspitzen mit J301-1 (+) und J301-2 (-) am DC-Controller-PCB verbinden. Beträgt die Spannung ca. 40 V?	Nein	Die Verkabelung vom DC-Controller-PCB zum DC-Netzteil-PCB überprüfen. Ist Sie in Ordnung, die Prüfschritte aus „Keine DC-Spannung“ durchführen.
DC-Controller-PCB	6	Ist das Problem durch Austausch des DC-Controller-PCBs behoben?	Ja	Ende.

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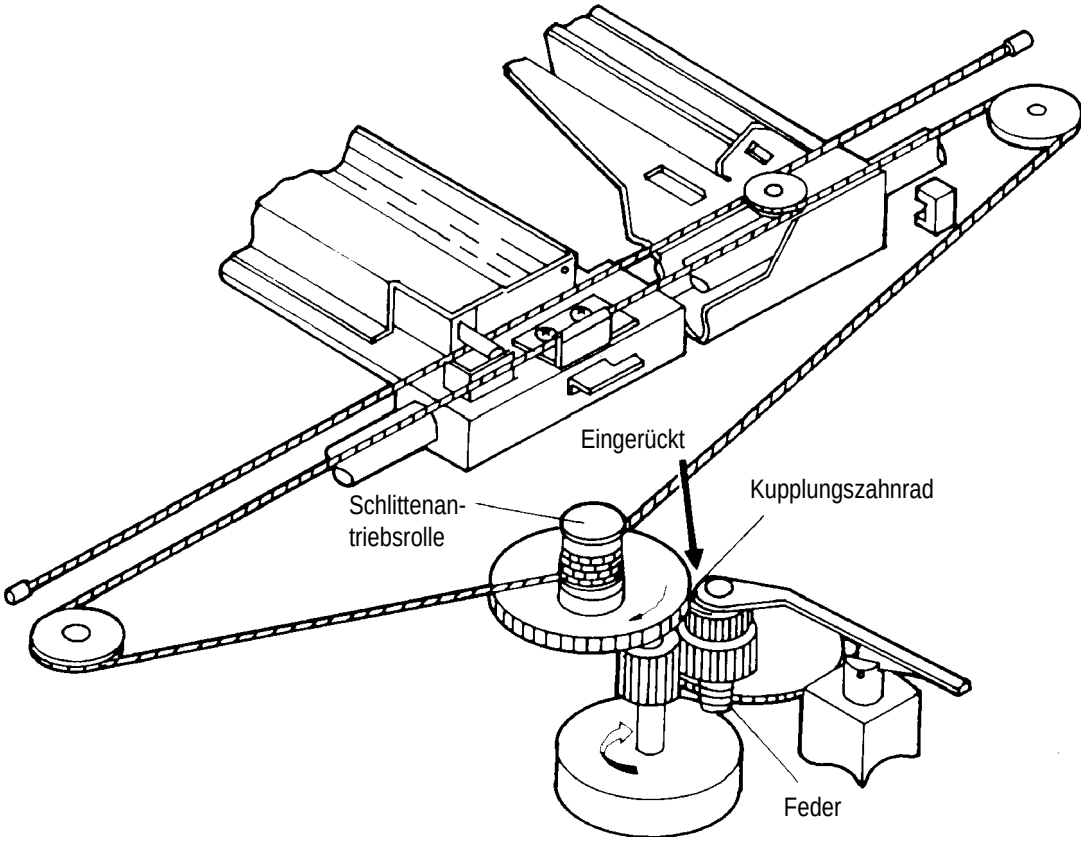

Abb. 4 - 1

17. Die Vorbelichtungslampen leuchten nicht

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Vorbelichtungs-lampen-PCB	1	Stecker J308 vom DC-Controller-PCB abziehen und das Multimeter auf den 1Ω -Bereich einstellen. Die Prüfspitzen mit J308-1 und J308-2 auf Kabelseite von J308 verbinden. Beträgt der Widerstand ca. 9Ω?	Nein	Die Vorbelichtungsleiste ersetzen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

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18. Die Belichtungslampe leuchtet nicht

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Lampe	1	Ist die Lampe korrekt installiert?	Nein	Die Lampe neu einsetzen.
Thermosicherung (FU2)	2	Die Thermosicherung (FU2) auf Durchlaß prüfen (die Prüfspitzen an beide Enden der Sicherung anschließen). Besteht Durchlaß?	Nein	Die Thermosicherung (FU2) ersetzen. **Hinweis:** Möglicherweise ist der normale Lampenbetrieb gestört, weil die Sicherung falsch positioniert oder der Kühlungsventilator ausgefallen ist. Nach Austausch der Sicherung sind diese Punkte daher zu prüfen.
Glühwendel der Lampe	3	Stecker J602 (2 Pin) vom Lampenregulator abziehen. Das Multimeter auf den 1 KΩ-Bereich einstellen und die Prüfspitzen mit den Lampenanschlüssen verbinden. Ist geringer Widerstand meßbar?	Nein	Die Lampe ersetzen.
DC-Controller-PCB	4	Das Multimeter auf den 50V DC-Bereich einstellen und die Prüfspitzen mit J305-3 (+) und J305-5 (-) verbinden. Fällt die Spannung von ca. 5 V auf ca. 0 V, wenn die Start-Taste betätigt wird und die Lampe einschaltet?	Nein	Den DC-Controller-PCB ersetzen.
Lampenregulator	5	Ist das Problem nach Austausch des Lampenregulators behoben?	Ja	Ende.
Verkabelung			Nein	Die AC-Verkabelung vom Hauptschalter zum Lampenregulator und zur Lampe prüfen. Weiterhin die DC-Verkabelung vom DC-Controller zum Lampenregulator überprüfen.

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19. Die Fixierwalzenheizung funktioniert nicht

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Stecker J106 (3 Pin) vom AC-Treiber / DC-Netzteil-PCB abziehen und das Multimeter auf den 1 KΩ-Bereich einstellen. Die Prüfspitzen mit J106-1 und J106-3 verbinden. Ist Widerstand meßbar?	Ja	Mit dem nächsten Schritt fortfahren.
Thermoschalter (TS1)	2	Die Fixiereinheit ausbauen. Die Prüfspitzen an beiden Seiten des Thermoschalters (TS1) anschließen. Ist Widerstand meßbar?	Nein	Den Thermoschalter (TS1) ersetzen. **Hinweis:** Die Ursache für das Ansprechen des Thermoschalters kann ein defekter SSR, ein falsch installierter Thermoschalter, beschädigte Fixierwalzen oder Separationsklauen sein. Nach Austausch des Thermoschalters sollten diese Punkte geprüft werden.
Heizelement (H1)	3	Die Prüfspitzen an die Anschlüsse des Heizelements anlegen. Ist Widerstand meßbar?	Nein	Die Installation des Heizelements (H1) überprüfen. Ist sie korrekt, das Heizelement ersetzen.
AC-Leitung			Ja	Die AC-Verkabelung innerhalb der Fixiereinheit überprüfen.
DC-Controller-PCB	4	Das Multimeter auf den 10 V DC-Bereich einstellen und die Prüfspitzen mit J306-2 (+) und J301-3 (-) verbinden. Beträgt die Spannung nach dem Einschalten des Kopierers ca. 1 V?	Nein	Den DC-Controller-PCB ersetzen.
AC-Treiber / DC-Netzteil			Nein	Den AC-Treiber / DC-Netzteil-PCB ersetzen.

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20. Keine Objektivbewegung

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Objektivsolenoid (SL2)	1	Das Gerät ausschalten und die Rückwand abnehmen. Anschließend das Gerät einschalten. Schaltet sich der Objektivsolenoid (SL2) ein?	Nein	Die Verkabelung vom DC-Controller-PCB zum Objektiv-Solenoid (SL2) überprüfen. Ist sie in Ordnung, SL2 ersetzen.
Objektiv-Antriebsrolle, Schienen	2	Das Gerät ausschalten und das Objektiv manuell in die Vergrößerungs- und Verkleinerungsrichtung bewegen. Ist die Bewegung leichtgängig?	Nein	Das Objektiv-Antriebsseil, Antriebsrolle und die Schienen überprüfen. Die Teile reinigen oder ggf. das Seil neu installieren.
Schlittenmotor (M2)	3	Siehe Schritt 4 von „Keine Bewegung des Schlittens“. Siehe Schritt 5 von „Keine Bewegung des Schlittens“.		
AC-Treiber / DC-Netzteil-PCB				
DC-Controller-PCB	4	Siehe Schritt 6 von „Keine Bewegung des Schlittens“.		

21. Der Zähler funktioniert nicht

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Zähler	1	Das Gerät ausschalten und J313 vom DC-Controller-PCB abziehen. Das Multimeter auf den 1 K-Bereich einstellen und die Prüfspitzen mit J313-1 und J313-2 auf Kabelseite von J313 verbinden. Ist Widerstand meßbar?	Nein	Die Verkabelung zwischen DC-Controller-PCB und Zähler überprüfen. Ist sie in Ordnung, den Zähler ersetzen.
Zähler	2	J313 wieder am DC-Controller-PCB verbinden und das Gerät einschalten. Das Multimeter auf den 30 V DC-Bereich einstellen und die Prüfspitzen mit J313-2 (+) und J313-1 (-) verbinden. Steigt die Spannung von ca. 0 V auf ca. 24 V, wenn die Start-Taste gedrückt wird?	Ja	Den Zähler ersetzen.
DC-Controller-PCB			Nein	Den DC-Controller-PCB ersetzen.

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22. Die Anzeige schaltet nicht ein

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Sensor-PCB der Kassettengröße	1	Bleibt die Anzeige auch aus, wenn die Kassette entfernt wird?	Ja	Die Verkabelung vom DC-Controller-PCB zum Sensor-PCB der Kassettengröße überprüfen. Ist sie in Ordnung, den Sensor-PCB ersetzen.
Papiersensor des Universaleinzugs (Q1), Papiersensor der Kassette (Q11)	2	Funktioniert das Papiersensor (Q1) oder Kassettenpapiersensor (Q11) normal (siehe Seite 2 - 10)?	Nein	Die Verkabelung vom DC-Controller-PCB zu Q1 oder Q11 überprüfen. Ist sie in Ordnung, Q1 oder Q11 ersetzen.
Bedienfeld	3	Ist das Problem nach Austausch des Bedienfeldes behoben?	Ja	Ende.
DC-Controller-PCB			Nein	Den DC-Controller-PCB ersetzen.

23. Die Anzeige geht nicht aus

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Kassette	1	Ist die Kassette vollständig in die Halterung eingeschoben?	Nein	Die Kassette vollständig hereinschieben.
Papiersensor des Universaleinzugs (Q1), Papiersensor der Kassette (Q11)	2	Funktioniert der Papiersensor des Universaleinzugs (Q1) oder der Papiersensor der Kassette (Q11) normal (siehe Seite 2 - 10)?	Nein	Die Verkabelung vom DC-Controller-PCB zu Q1 oder Q11 überprüfen. Ist sie in Ordnung, Q1 oder Q11 ersetzen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

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24. Die Anzeige schaltet nicht ein

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Stausensor	1	Wird der Kopiervorgang bei einem Stau angehalten?	Ja	Fahren Sie mit Schritt 3 fort.
DC-Controller-PCB	2	Arbeiten die folgenden Sensoren normal (siehe Seite 2 - 10)? • Zeitwalzensensor (Q2) • Ausgabesensor (Q5)	Nein	Den Sensor ersetzen.
			Ja	Den DC-Controller-PCB ersetzen.
Bedienfeld	3	Ist das Problem nach Austausch des Bedienfeldes behoben?	Ja	Ende.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

25. Die Anzeige schaltet ein, obwohl der Papiertransport normal verläuft

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Stausensor	1	Funktionieren die folgenden Sensoren normal (siehe Seite 2 - 10)? • Zeitwalzensensor (Q2) • Ausgabesensor (Q5)	Nein	Den Sensor ersetzen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

26. Die Anzeige schaltet nicht ein, obwohl kein Toner vorhanden ist (Schwarztoner-Entwicklungseinheit)

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Steckerkontakt	1	Ist Stecker J39 vom Stift innerhalb der oberen Frontabdeckung richtig angeschlossen?	Nein	Stecker J39 richtig verbinden.
Schwarztoner-Pegelsensor (PS1)	2	Das Multimeter auf den 12 V DC-Bereich einstellen und die Prüfspitzen mit J303-2 (+) ($\overline{\text{BTEP}}$) und J303-1 (-) (GND) am DC-Controller-PCB verbinden. Beträgt die Spannung ca. 0 V?	Nein	Die Verkabelung vom DC-Controller-PCB zu TS1 überprüfen und die Beweglichkeit des Rührwerks innerhalb der Schwarztoner-Entwicklungseinheit überprüfen. Ist alles normal, den Schwarztoner-Pegelsensor (TS1) ersetzen.
Bedienfeld	3	Ist das Problem nach Austausch des Bedienfeldes behoben?	Ja	Ende.
DC-Controller-PCB			Nein	Den DC-Controller-PCB ersetzen.

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27. Die Anzeige schaltet nicht aus, obwohl ausreichend Schwarztoner vorhanden ist

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
DC-Controller-PCB	1	Ist das Problem nach Aus- und Wiedereinschalten des Kopierers behoben?	Ja	Den DC-Controller-PCB ersetzen.
DC-Controller-PCB	2	Das Gerät ausschalten und Stecker J39 abziehen. Das Gerät einschalten und die Start-Taste betätigen. Nach dem Anhalten des Hauptmotors fünf Sekunden oder länger warten und die Start-Taste erneut betätigen. Schaltet sich die Anzeige nach dem erneuten Anhalten des Hauptmotors ein?	Ja	Den DC-Controller-PCB ersetzen.
Rührwerk und Zahnrad	3	Funktioniert das Rührwerk innerhalb der Schwarztoner-Entwicklungseinheit normal?	Nein	Das Rührwerkantriebszahnrad überprüfen.
Schwarztoner-Pegelsensor			Ja	Den Schwarztoner-Pegelsensor (PS1) ersetzen.

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28. Die Anzeige schaltet nicht ein

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Wurde bei Installation der Kontrollkarte der Kurzschlußstecker J504 abgezogen?	Nein	Den Kurzschlußstecker abziehen und den Stecker der Kontrollkarte verbinden.
Verkabelung	2	Das Gerät ausschalten, den Kontrollzähler 2 oder 3 aus dem Steckplatz ziehen und den Stecker J314 vom DC-Controller-PCB abziehen. Das Multimeter auf den Ω X 1-Bereich einstellen und die Prüfspitzen mit J314-13 und J315-3 an Kabelseite von J309 verbinden. Werden unendlich Ω angezeigt?	Nein	Die Verkabelung zwischen Steckplatz und DC-Controller-PCB überprüfen.
Bedienfeld	3	Ist das Problem durch Austausch des Bedienfeldes behoben?	Ja	Ende.
DC-Controller			Nein	Den DC-Controller-PCB ersetzen.
Sensor-PCB der Kontrollkarte	4	Ist das Problem durch Austausch des Kartensensor-PCBs innerhalb der Kontrollkarte 5 behoben?	Ja	Ende. Möglicherweise ist ein Problem mit dem Relais auf dem Sensor-PCB der Kontrollkarte aufgetreten.
Controller-PCB der Kontrollkarte			Nein	Den Controller-PCB der Kontrollkarte 5 ersetzen.

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29. Die 123 Anzeige geht nicht aus

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Netzteil der Kontrollkarte	1	Funktioniert das Display der Kontrollkarteneinheit?	Nein	Entweder ist die 24 V DC- oder die GND-Leitung nicht mit der Kontrollkarteneinheit verbunden.
Bedienungsfehler	2	Wurde eine Karte in die Einheit eingeführt?	Nein	Dem Kunden mitteilen, daß die Meldung erst ausgeht, wenn eine Abteilungskarte eingeführt wird.
	3	Die Karte vollständig herausziehen und erneut einsetzen.	Nein	Mit Schritt 7 fortfahren.
Karte	4	Erscheint im Display der Kontrollkarteneinheit V die Meldung „-EE-“?	Ja	Eine andere Karte verwenden. Dem Kunden Hinweise zur Behandlung der Karte geben.
Sensor-PCB der Kontrollkarte			Nein	Den Controller-PCB der Kontrollkarteneinheit V ersetzen.
Controller-PCB der Kontrollkarte	5	Ist die Karte beschädigt, verunreinigt etc.?	Nein.	Den Controller-PCB der Kontrollkarteneinheit V ersetzen.
	6	Blinkt die Displayanzeige in Schritt 4)? Mit der Einstellkarte für die max. Kopienzahl des Kunden die für die Abteilung zulässige Kopienzahl überprüfen. Wurde die max. Zahl der Kopien erreicht?	Ja	Funktioniert die Kontrollkarteneinheit V normal? Eine andere Karte zum Ändern der max. Kopienzahl verwenden.
Controller-PCB der Kontrollkarte			Nein	Den Controller-PCB der Kontrollkarteneinheit V ersetzen.
Verkabelung	7	Das Gerät ausschalten und zum Testen den Kontrollzähler im Steckplatz ersetzen. Stecker J314 vom DC-Controller abziehen und das Multimeter auf den Ω X 1-Bereich einstellen. Die Prüfspitzen mit J314-13 und J315-3 verbinden. Werden 0Ω angezeigt?	Nein	Die Verkabelung zwischen dem Steckplatz und dem DC-Controller-PCB überprüfen.
DC-Controller-PCB			Ja	Den DC-Controller-PCB ersetzen.

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KAPITEL 5

FEHLERSUCHE BEI PAPIERTRANSPORT-PROBLEMEN

I. Papierstaus . . . . . 5 - 1
II. Papiertransportprobleme . . . . . 5 - 5

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I. Papierstaus

Papierstaus können in folgenden Hauptbereichen des Kopierers auftreten:

① Einzugsbereich
② Separations- und Transportbereich
③ Fixier- und Ausgabebereich
④ Trommelreinigungsbereich
Im folgenden wird die Staubeseitigung für jeden der o.g. Bereiche beschrieben.

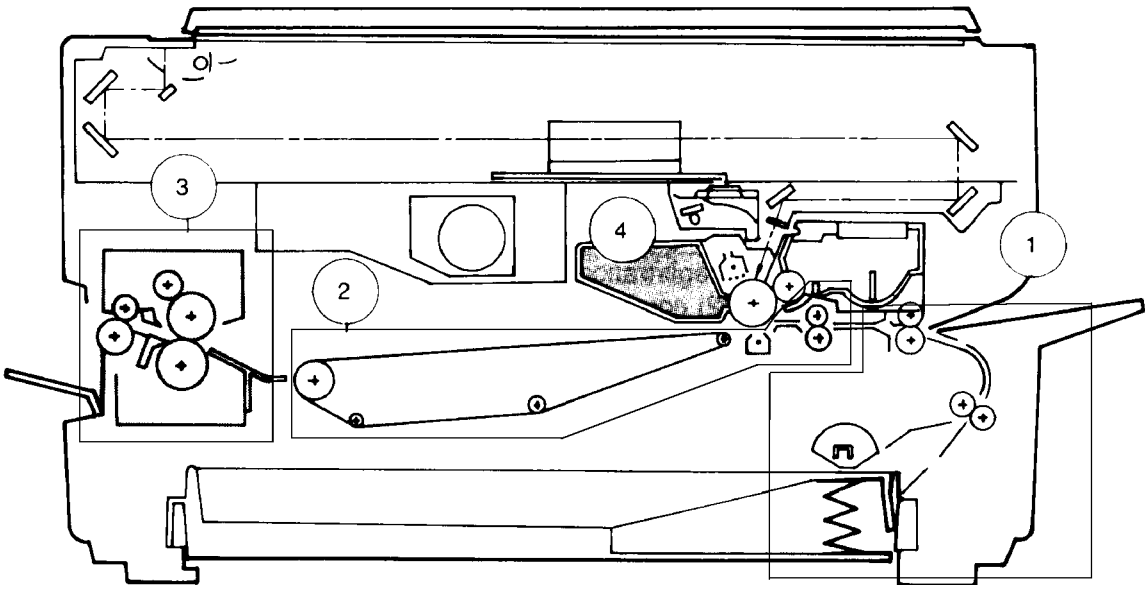

Abb. 5 - 1

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1. Staus im Einzugsbereich

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Kassette	1	Ist die Kassette vollständig in den Kopierer eingesetzt?	Nein	Die Kassette richtig einsetzen.
	2	Tritt das Problem nicht auf, wenn eine andere Kassette verwendet wird?	Ja	• Die Rückhalteecken der Kassette überprüfen. • Die Stärke der Kassettenfedern überprüfen.
Kopierpapier	3	Ist das Kopierpapier gewölbt oder faltig?	Ja	• Die Papiersorte wechseln. • Dem Kunden Aufbewahrungsempfehlungen geben.
	4	Tritt das Problem nicht auf, wenn von Canon empfohlene Papiersorten verwendet werden?	Ja	Den Kunden darauf hinweisen, eine von Canon empfohlene Papiersorte zu verwenden.
DC-Controller-PCB; Einzugswalzenkupplung	5	Rotiert die Einzugswalze während des Kopiervorgangs?	Nein	Siehe Abschnitt „Kein Papiereinzug“.
Einzugswalze	6	Sind die Beläge der Einzugswalzen deformiert oder abgenutzt?	Ja	Die Einzugswalzen ersetzen.
Zeitwalzensensor (Q2)	7	Funktioniert der Zeitwalzensensor (Q2) ordnungsgemäß (siehe Seite 2 - 10)?	Nein	Den Zeitwalzensensor (Q2) ersetzen.
Transportwalze und Papierführungsplatte			Ja	• Jede einzelne Transportwalze auf Deformation und Abnutzung untersuchen. • Die Papierführungsplatte auf Deformation oder Grate untersuchen.

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2. Stau im Separations- und Transportbereich

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
	1	Läuft die Vorderkante des Kopierpapiers durch die Zeitwalzen?	Ja	Mit Schritt 5) fortfahren.
Zeitwalzen-kupplung (CL1)	2	Funktioniert die Zeit-walzenkupplung (CL1) ordnungsgemäß?	Nein	Die Zeitwalzenkupplung (CL1) überprüfen.
Zeitwalze	3	Sind die Zeitwalzen abge-nutzt, deformiert oder ver-unreinigt?	Ja	Verunreinigungen mit Alko-hol reinigen, bei Deformatio-nen, ersetzen.
	4	Sind die Rückhaltefedern an den Enden der Zeit-walzen richtig installiert?	Nein	Die Federn ordnungsgemäß installieren.
			Ja	Die Transferführung auf Fremdkörper und Deformati-on überprüfen.
Papier-führungsdraht	5	Ist der Papierführungs-draht der Transferkorona-Einheit richtig installiert?	Nein	Den Draht ordnungsgemäß installieren.
Transportband	6	Bewegt sich das Transport-band ordnungsgemäß?	Nein	Das Transportband, Walzen und Rollen prüfen.
Transportvenilator (FM3)			Ja	Die Funktion des Transport-ventilators überprüfen.

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3. Stau im Fixier- und Ausgabebereich

Mögliche Ursache		Schritt	Prüfung	Ergebnis	Maßnahme
Separationsklauen der Ausgabeeinheit		1	Sind die Separationsklauen deformiert oder abgenutzt?	Ja	• Die Separationsklauen ersetzen. • Verunreinigte Separationsklauen mit MEK reinigen.
Fixiereinheit	Obere und untere Fixierwalzen	2	Ist die obere oder untere Fixierwalze deformiert oder zerkratzt?	Ja	Die obere und untere Fixierwalze ersetzen (grundsätzlich beide Walzen gleichzeitig).
	Papierführungsplatte	3	Ist die Papierführung mit Toner etc. verunreinigt?	Ja	Die Papierführungsplatte mit MEK reinigen.
		4	Ist die Höhe der Papierführungsplatte korrekt?	Nein	Die Höhe der Papierführungsplatte justieren.
	Andruck der Fixierwalzen	5	Liegt der Walzenandruck im vorgeschriebenen Bereich?	Nein	Den Andruck der Fixierwalzen justieren.
Ausgabeeinheit	Arm des Ausgabesensors	6	Ist der Sensorarm leichtgängig?	Nein	Den Arm so justieren, daß er leicht beweglich ist.
	Ausgabesensor (Q5)	7	Funktioniert der Ausgabesensor (siehe Seite 2 - 10)?	Nein	Den Ausgabesensor (Q5) ersetzen.
	Antriebseinheit der Ausgabewalzen	8	Rotieren die Ausgabewalzen gleichmäßig?	Nein	Die Antriebseinheit der Ausgabewalze überprüfen.
Vorderer, nicht kopierbarer Bereich				Ja	Den vorderen, nicht kopierbaren Bereich (1,5 ± 1,0 mm) des Kopierpapiers überprüfen.

4. Stau im Trommel-Reinigungsbereich

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Kopierpapier	1	Tritt der Stau auf, wenn dünnes Papier verwendet wird?	Ja	Dem Kunden erklären, daß bei dünnen Papiersorten häufiger Staus auftreten.
	2	Tritt der Stau auf, wenn doppelseitige oder overlay Kopien erstellt werden?	Ja	Dem Kunden erklären, daß vor dem zweiten Kopierdurchlauf die Wölbung beseitigt werden sollte.
Entladungseinrichtung, Hochspannungstransformator			Nein	Prüfen, ob an der Entladungseinrichtung Spannung anliegt.

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II. Papiertransportprobleme

1. Die Blätter kleben zusammen

Mögliche Ursache	Schritt	Prüfung	Ergebnis	Maßnahme
Kassette	1	Liegt das Papier ordnungsgemäß unter den Rückhalteecken der Kassette.	Nein	Das Papier korrekt in die Kassette einlegen.
	2	Den Papierstapel in der Kassette nach drücken und loslassen. Hebt er sich gleichmäßig?	Nein	• Die Breite des eingelegten Kopierpapiers überprüfen. • Die Position der Seitenbegrenzungen in der Kassette überprüfen. • Die Stärke der Kassettenfedern messen, sind sie zu schwach, ersetzen.
Kopierpapier	3	Wird eine von Canon empfohlene Papiersorte verwendet?	Nein	Dem Kunden raten, eine von Canon empfohlene Papiersorte zu verwenden.
Rückhalteecken			Ja	Die Rückhalteecken der Kassette auf Deformation prüfen.

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2. Faltenbildung

Mögliche Ursache		Schritt	Prüfung	Ergebnis	Maßnahme
Einzugseinheit		1	Den Kopierer ausschalten, wenn das Kopierpapier die Transporteinheit passiert. Befinden sich zu diesem Zeitpunkt Falten im Kopierpapier?	Ja	• Die Einzugseinheit überprüfen. • Die Zeitwalzen überprüfen.
Kopierpapier		2	Liegt das Papier schief?	Ja	Das Papier hat möglicherweise Feuchtigkeit aufgenommen. Dem Kunden Aufbewahrungsempfehlungen geben.
		3	Tritt das Problem nicht auf, wenn frisches Papier verwendet wird?	Nein	Dem Kunden raten, eine von Canon empfohlene Papiersorte zu verwenden.
Fixiereinheit	Papierführung	4	Wird eine von Canon empfohlene Papiersorte verwendet?	Ja	Die Papierführung reinigen.
		5	Befinden sich Fremdkörper oder Toner an der Papierführung?	Nein	Die Höhe der Papierführung justieren.
	Andruck der Fixierwalzen	6	Ist die Höhe der Papierführung richtig eingestellt?	Nein	Die Andruckstärke der Fixierwalzen justieren.
	Obere und untere Fixierwalzen		Liegt der Andruck der Fixierwalzen im vorgeschriebenen Bereich?	Ja	Die obere und untere Fixierwalze ersetzen (grundsätzlich beide Walzen ersetzen).

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KAPITEL 6

FUNKTIONEN UND LAGE VON ELEKTRISCHEN BAUTEILEN

I. Sensoren und Lampen . . . . . 6 - 1
II. Kupplungen, Solenoide, Motoren und Heizungen . . . . . 6 - 2
III. Schalter, Stromunterbrecher, Zähler etc. . . . . 6 - 3
IV. PCBs. . . . . 6 - 4

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I. Sensoren und Lampen

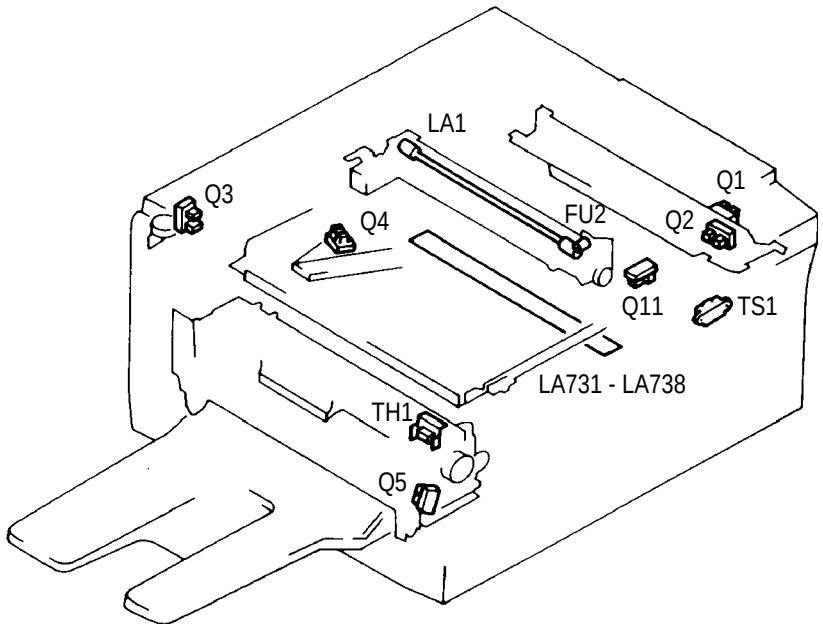
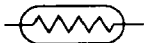
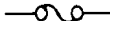
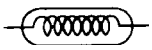


Abb. 6 - 1

Symbol	Name	Bezeichnung	Funktion
	Schwarztonersensor	TS1	Messen der Tonermenge in der Schwarztoner-Entwicklungseinheit.
	Lichtunterbrecher	Q1	Papiersensor des Universaleinzugs.
		Q2	Zeitwalzensensor.
		Q3	Schlitten-Heimpositionssensor.
		Q4	Objektiv-Heimpositionssensor.
		Q5	Ausgabesensor.
		Q11	Papiersensor der Kassette.
	Thermistor	TH1	Temperatursensor der oberen Fixierwalze.
	Thermosicherung	FU2	Überhitzungsschutz der Belichtungslampe.
	Lampe	LA1	Belichtungslampe.
		LA731 - LA738	Vorbelichtungslampe.

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II. Kupplungen, Solenoide, Motoren und Heizungen

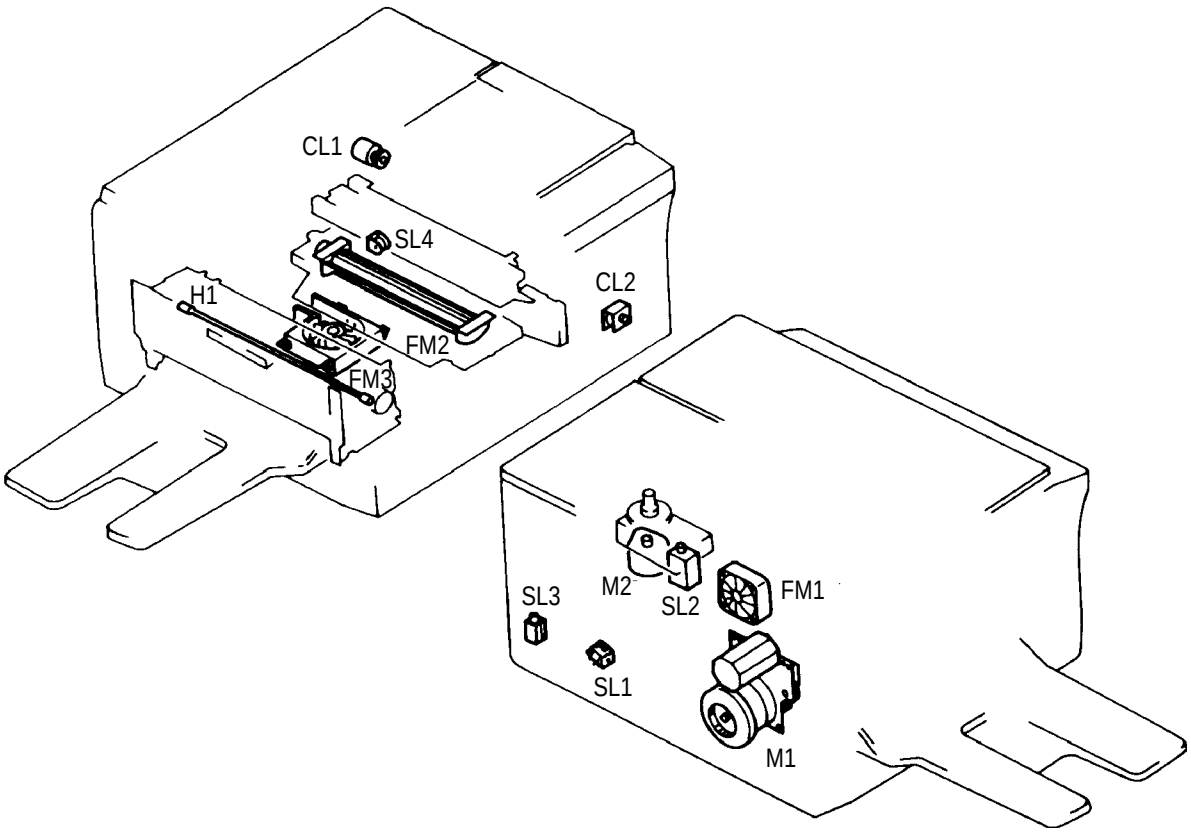

Abb. 6 - 2

Symbol	Name	Bezeichnung	Funktion
CL	Kupplung	CL1	Zeitwalzenkupplung
		CL2	Kupplung des Universaleinzugs
SL	Solenoid	SL1	Kupplungssolenoid der Einzugswalze
		SL2	Antriebssolenoid des Objektivs
		SL3	Solenoid des Universaleinzugs
		SL4	Randbelichtungssolenoid
M	Motor	M1	Hauptmotor
		M2	Schlittenmotor
	Ventilator	FM1	Schlittenkühlungsventilator
		FM2	Abluftventilator
		FM3	Transportventilator
	Heizelement	H1	Fixierwalzenheizung

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III. Schalter, Stromunterbrecher, Zähler etc.

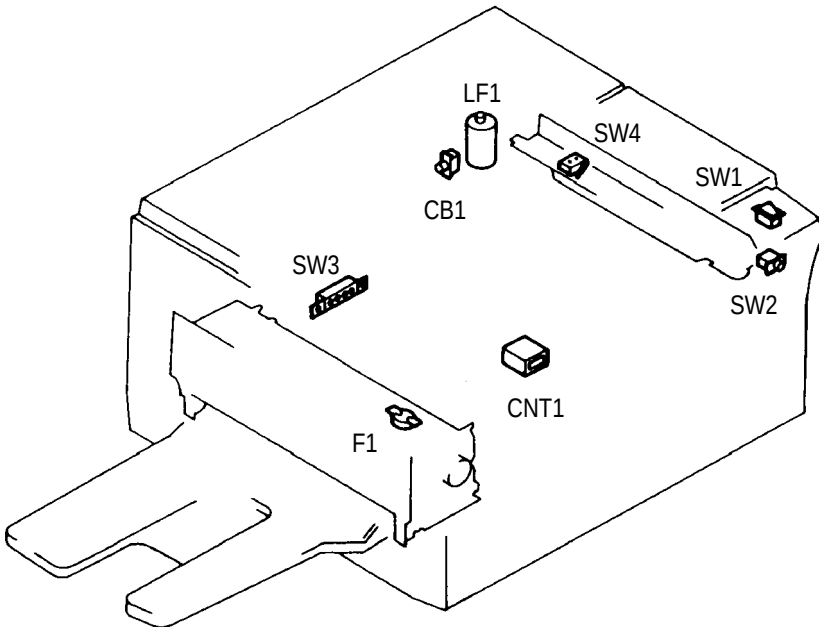

Abb. 6 - 3

Symbol	Name	Bezeichnung	Funktion
	Schalter, Mikro-schalter	SW1	Hauptschalter
		SW2	Vordertürschalter
		SW3	Kassettengrößesensor
		SW4	Rechter Türschalter
	Thermoschalter	F1	Überhitzungsschutz der Fixiereinheit
CB	Stromunterbrecher	CB1	Überlastungsschutz der AC-Leitung
CNT	Zähler	CNT1	Gesamtkopienzählwerk
LF	Entstörfilter	LF1	Eliminieren von Störfrequenzen

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IV. PCBs

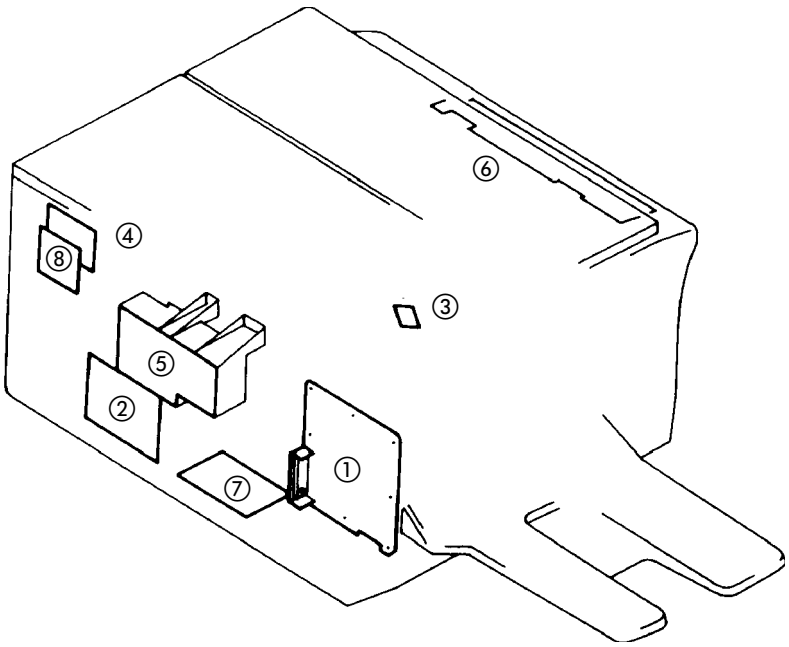

Abb. 6 - 4

Symbol	Name	Funktion
①	DC-Controller-PCB	Kontrolle der Betriebsfunktionen.
②	AC-Treiber / DC-Netzteil-PCB	Versorgungsspannung für Hauptmotor und Fixierwalzenheizung sowie DC-Versorgungsspannung für den Kopierer.
③	AE-Sensor-PCB	Messen der Druckdichte der Dokumentvorlage.
④	Lampenregulator-PCB	Kontrolle der Belichtungslampenspannung.
⑤	Hochspannungstransformator-PCB	Hochspannung für Primär- und Transfereinheiten sowie für Entwicklungsvorspannung.
⑥	Bedienfeld-PCB	Kontrolle der Bedienfeldfunktionen.
⑦	DC-Netzteil-PCB (für Sorter)	Spannungsversorgung des Sorters.
⑧	DC-Netzteil-PCB (für ADF)	Spannungsversorgung des ADF.

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KAPITEL 7
SELBSTDIAGNOSE

I. Selbstdiagnosefunktionen . . . . . 7 - 1

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I. Selbstdiagnosefunktionen

Der Mikroprozessor auf dem DC-Controller-PCB führt in bestimmten Intervallen eine Funktionsprüfung des Kopierers (insbesondere der Sensoren) durch. Wird ein abweichendes Betriebsverhalten erfaßt, bewirkt er die Ausgabe einer Fehlermeldung am Display auf dem Bedienfeld. Die nachfolgende Tabelle enthält verschiedene Fehlercodes, ihre Bedeutung und das entsprechende Erfassungs-Timing. Beispiel für die Anzeige des Fehlercode E ↔ 000: Blinkt

Fehlercode	Wahrscheinliche Ursache	Fehlerkriterien
E000	Thermistor (TH1), Fixierwalzenheizung (H1), AC-Treiber / DC-Netzteil-PCB, DC-Controller-PCB, Aktivierung des Thermoschalters.	• Die erfaßte Temperatur der Fixierwalzen hat sich 40 Sekunden nach dem Einschalten nicht verändert (die Meldung erscheint nicht, wenn der Aufwärmvorgang innerhalb von 30 Sekunden abgeschlossen ist). • Die Temperatur der oberen Fixierwalze fällt nach der Aufwärmphase für mehr als 0,1 Sekunden unter 100° C.
E001	Defekter Thermistor (TH1), AC-Treiber / DC-Netzteil-PCB, Fixierwalzenheizung (H1) oder DC-Controller-PCB.	Die Temperatur bleibt für mehr als 0,1 Sekunden auf über 220° C.
E030	Zähler, DC-Controller-PCB.	Der Zähler wird nicht betrieben, da das Unterbrechungssignal für mehr als 0,1 Sekunden ausgegeben wurde.
E202	Schlitten-Heimpositionssensor (Q3), Schlittenmotor (M2), Motor-Controller-PCB oder DC-Controller-PCB.	• Der Schlitten ist beim Drücken der Start-Taste nicht in Heimposition (SCHP = 0). Nach Beginn der Zurückbewegung erreicht der Schlitten nicht innerhalb von 15 Sekunden die Heimposition (SCHP bleibt 0). • Falls sich der Schlitten bei gedrückter Start-Taste in Heimposition befindet (SCHP = 1). - Der Schlitten bleibt innerhalb von 1,5 Sekunden nach Erhalt des Vorlaufsignals in Heimposition (SCHP bleibt 1). - Der Schlitten kehrt eine Sekunde nach Verlassen der Heimposition (SCHP = 0) nicht zur Heimposition zurück (SCHP bleibt 0).
E210	Objektiv-Heimpositionssensoro (Q4) oder DC-Controller-PCB.	• Das Objektiv kehrt nicht innerhalb von 2,5 Sekunden zur Heimposition zurück (LHP bleibt 0). LHP bleibt für mindestens vier Sekunden „1“.
E220	Lampenregulator oder Belichtungslampe.	Während des Lampeneinschalt-Timings ist die Bedingung LAON = 1 nicht gegeben. Während des Lampenausschalt-Timings ist die Bedingung LAON = 0 nicht gegeben.
E245	DC-Controller-PCB.	Die Daten im EEPROM wurden häufiger überschrieben, als zulässig.
E261	AC-Treiber / DC-Netzteil, DC-Controller-PCB.	Die Netzfrequenz liegt außerhalb des zulässigen Bereichs.

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Fehlercode	Wahrscheinliche Ursache	Fehlerkriterien
E400	ADF-Controller-PCB, ADF-Netzteil oder DC-Controller-PCB.	ADF bleibt für mehr als 12 Sekunden „0“.
E500	Sorter-Controller-PCB oder DC-Controller-PCB.	• Die Kommunikation des Kopierers mit dem Sorter ist für mindestens 12 Sekunden ausgefallen. • 35 Sekunden nach Ausgabe des BCR-Signals wird das SORTER STANDBY Signal nicht zurückgegeben.

1. Rücksetzen nach Selbstdiagnosefehlern

Solange die Fehlermeldungen „E000“ oder „E001“ nicht im Display erscheinen, kann der Kopierer durch einfaches Aus- und Einschalten zurückgesetzt werden.
Durch die o.g. Ausnahme wird der Kunde daran gehindert, den Kopierer mit defekter Fixiereinheit (offener Thermistor oder ähnliches) zurückzusetzen, was zu einer ernsthaften Beschädigung des Gerätes führen könnte.
Bei Fehlermeldung „E000“ oder „E001“ ist wie folgt vorzugehen:

1) Die Rückwand des Kopierers abnehmen.
2) Den Service-Schalter (SW300) auf dem DC-Controller-PCB drücken.
3) Prüfen, ob „P“ und „OFF“ abwechselnd am Display des Bedienfelds erscheinen.
4) Den Kopierer ausschalten.

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ANHANG

I. Spezifikationen . . . . . A - 1
II. Liste der Spezialwerkzeuge . . . . . A - 2

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I. Spezifikationen

1. Gerätetyp

Gehäuse	Tischgerät
Vorlagenglas	Feststehend
Lichtquelle	Halogenlampe (300 W)
Objektiv	Zoomobjektiv
Lichtempfindliches Medium	OPC

2. Systemdaten

Reproduktion		Indirekt, elektrostatisch
Aufladung		Korona
Belichtung		Schlitz (bewegliche Lichtquelle)
Kopierkontrast		Automatisch oder manuell
Entwicklung		Trocken
Einzug	Automatisch	Ausschließlich Kassette
	Manuell	Multifeeder
Transfer		Korona
Separation		Krümmungstrennung und Entladungseinrichtung
Trommelreinigung		Abstreifer
Fixierung		Heizwalze (900 W)

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3. Leistungsdaten

Dokumentart		Einzelblatt, Buch, 3-D-Objekt (2 kg)
Dokumentgröße		A3 max.
Aufwärmzeit		75 Sekunden (ca. bei 20° C)
Erste Kopie		9,4 Sekunden (A4, AE, Ein-/Ausgeschaltet 1 : 1)
Ausfertigungen		99
Kopiengröße		A3 (max.), A6 (min.: 148 x 105 mm)
Art des Kopierpapiers	Kassette	Normalpapier (64 - 80 g/qm) Transparentpapier, gefärbtes Papier
	Multifeeder	Normalpapier (64 - 128 g/qm), Transparentpapier*, farbiges Papier, OHP-Folie*, Postkarten, Etiketten
Doppel-seitige Kopien	Multifeeder	Normalpapier (64 -128 g/qm), gefärbtes Papier, Postkarten
Overlay Kopien	Multifeeder	Normalpapier (64 -128 g/qm), gefärbtes Papier, Postkarten
Kassette	Klauen	Vorhanden
	Standard	27 mm Tiefe (ca. 250 Blatt, 80 g/qm Papier)
	Universal	Nicht vorhanden
Ausgabefach		Ca. 100 Blatt (A4, 80 g/qm)
Bildfreier Bereich (1. Seite)	Vorderkante	2,0 ± 1,5 mm oder kleiner
	links/rechts	2,5 ± 1,5 mm oder kleiner
Automatisches Rücksetzen		Vorhanden (zwei Minuten Standard)
Automatische Abschaltung		Nicht vorhanden
Zubehör		ADF-A1, Farbtonereinheit, MS-A1, Stapler, Sorter-B1, Kontrollkarte V

* Bei Transparentpapier kann es zu Doppeleinzügen kommen. Bei dünnem Papier oder OHP-Folie sind die Seiten einzeln zuzuführen.

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4. Sonstiges

Netzteil		Serien-Nr.	
	220 V / 50 Hz	UBN XXXXX	
	240 V / 50 Hz	QBN XXXXX	
Leistungs-aufnahme	Maximal	Maximal 1,5 kW	
	Stand-By	0,148 kW (Referenzwert)	
	Fortlaufendes Kopieren	0,64 kW (Referenzwert)	
Betriebs-geräusch	Kopiervorgang	Max. 55 dB	Gemäß ISO
	Stand-By	Max. 40 dB	
Ozon		Max. 0,05 ppm (UL-Standard)	
Abmessungen	Breite	297 mm	
	Tiefe	617 mm	
	Höhe	391 mm	
Gewicht		50,6 kg	
Umgebungs-bedingungen	Temperatur	15,0° C - 30,0° C	
	Luftfeuchtigkeit	5 % - 80 %	
	Atmosphärischer Druck	0,6 - 1	
Sonstiges		Kopierpapier zum Schutz vor Feuchtigkeit bis zum Gebrauch in der Packung lassen.	

Kopiermaßstäbe		**Papiergröße**	**Kassette**	**Kopien/Minute**
Direkt		A3 (297 x 420 mm)	A3	9
		A4 (210 x 297 mm)	A4	15
		B4 (257 x 364 mm)	B4	10
		B5 (182 x 257 mm)	B5	17
		A5R (210 x 149 mm)	A5R	16
Verkleinerung	I	50 %		
	II	A3 → A4	A4R	10
Vergrößerung	I	A4 → A3	A3	9
	II	200 %		

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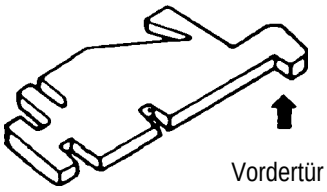
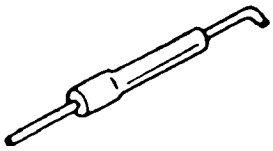
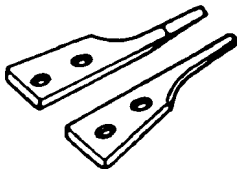
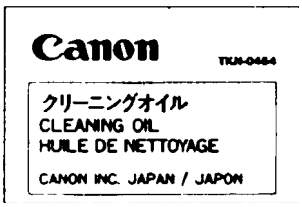
II. Liste der Spezialwerkzeuge

Die folgenden Werkzeuge werden zusätzlich zu den Standardwerkzeugen für den Service am Kopierer benötigt.

Nr.	Werkzeugname	Werk-zeug-Nr.	Aussehen	Kategorie	Anwendung/ Bemerkungen
1	Türschalter-überbrückung	TKN-0093		A	Zum Messen der Federstärke inner-halb der Kassette.
2	Druckfederwaage	CK-0054		B	Zum Justieren der Spannung des Schlittenseils.
3	Zangenklingen	CK-0426		B	Zum Entfernen von Sicherungs-ringen: 4 - 9 mm.
4	Reinigungsöl	TKN-0464		A	

Hinweis:
Kategorie
- A: Ein Werkzeug pro Service-Techniker
- B: Ein Werkzeug pro Gruppe von fünf Technikern
- C: Ein Werkzeug pro Werkstatt

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NP1550

PARTS-CATALOG

Canon

FY8 - 31AS - 010

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105.　本体底板
110.　電源コード台部
130.　操作部
160.　原稿台カバー部
190.　排熱ファン部

210.　レンズ台部
220.　光学系駆動部
250.　ドラム駆動部

300.　カセット
315.　カセットトレイ
320.　給紙軸
325.　マルチ手差し部
350.　搬送部
351.　転写ガイド部

400.　第1ミラー台部
401.　第2ミラー台部
450　ブランク露光部

560.　転写帯電器

640.　現像器（黒）

810.　定着器

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300.　CASSETTE
315.　CASSETTE TRAY ASSEMBLY
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D.　NUMERICAL INDEX

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FIGURE A ASSEMBLY LOCATION DIAGRAM (1/2)
主要部品配置図 (1/2)

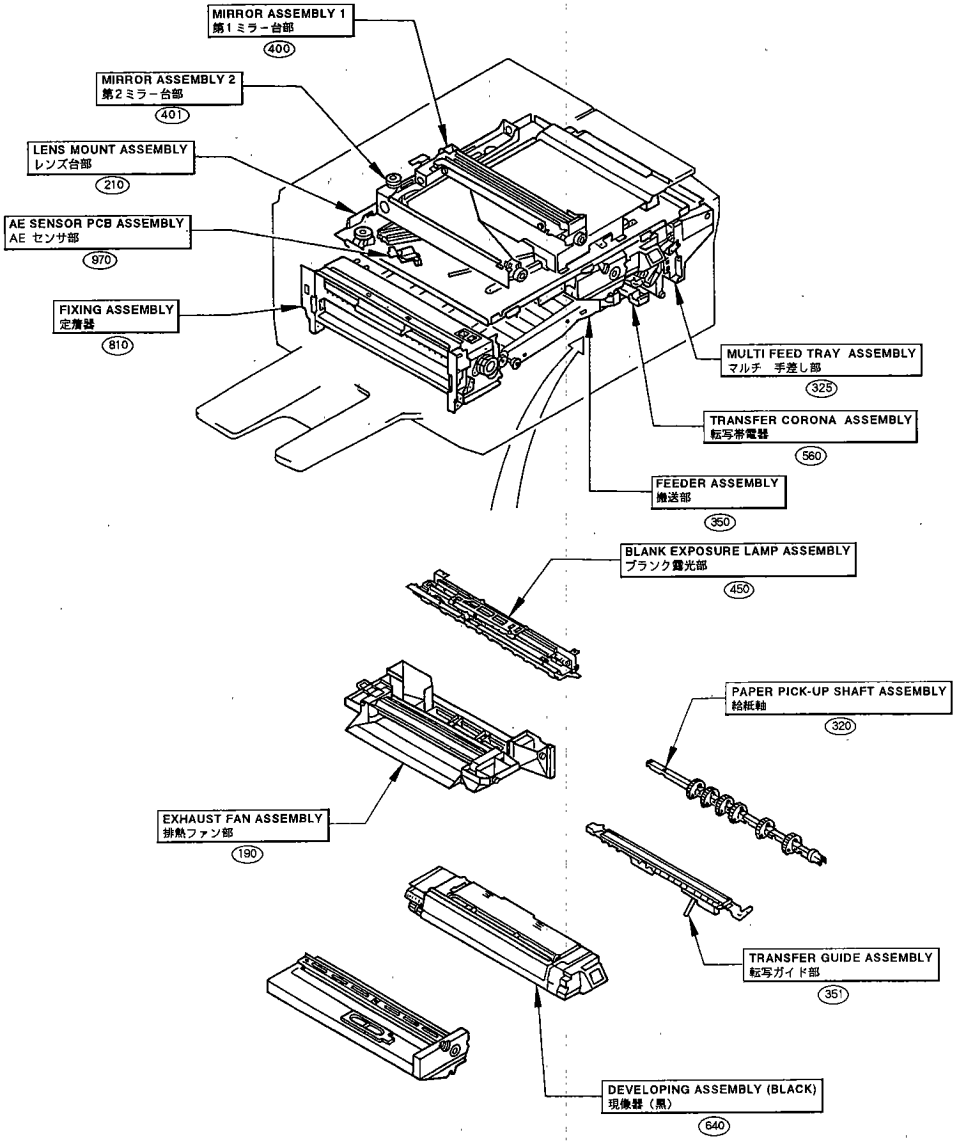

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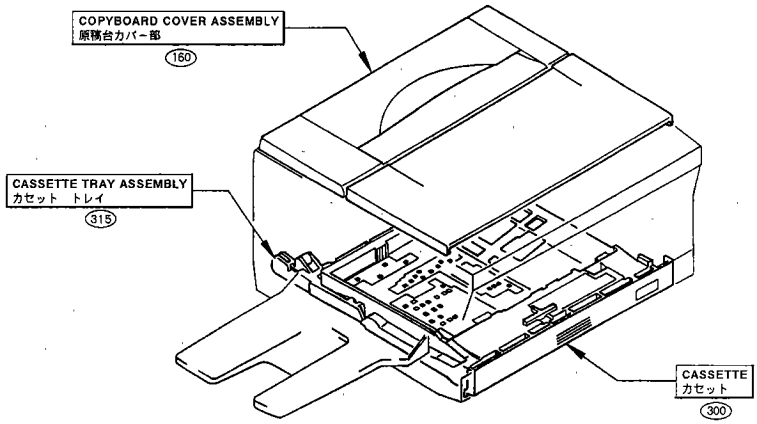
FIGURE A ASSEMBLY LOCATION DIAGRAM (2/2)
主要部品配置図 (2/2)



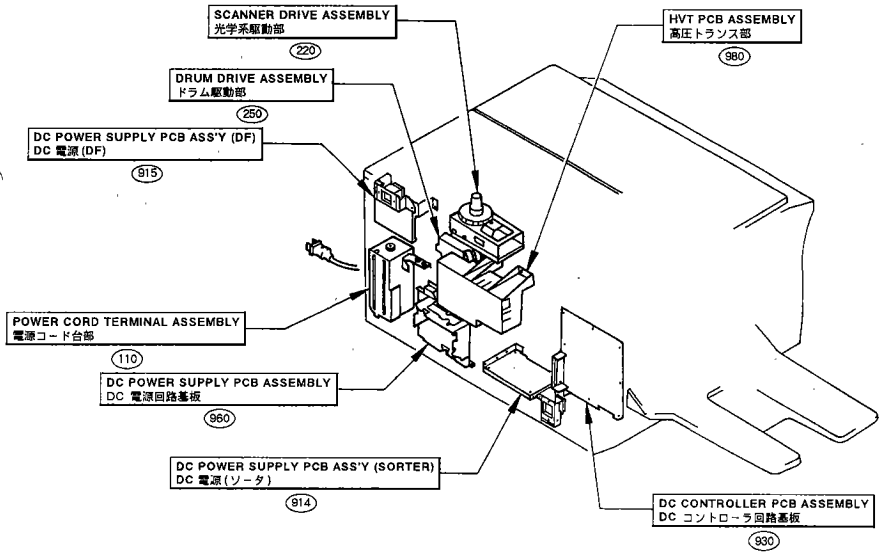


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FIGURE 100 EXTERNAL COVERS, PANELS, ETC.
外装カバー

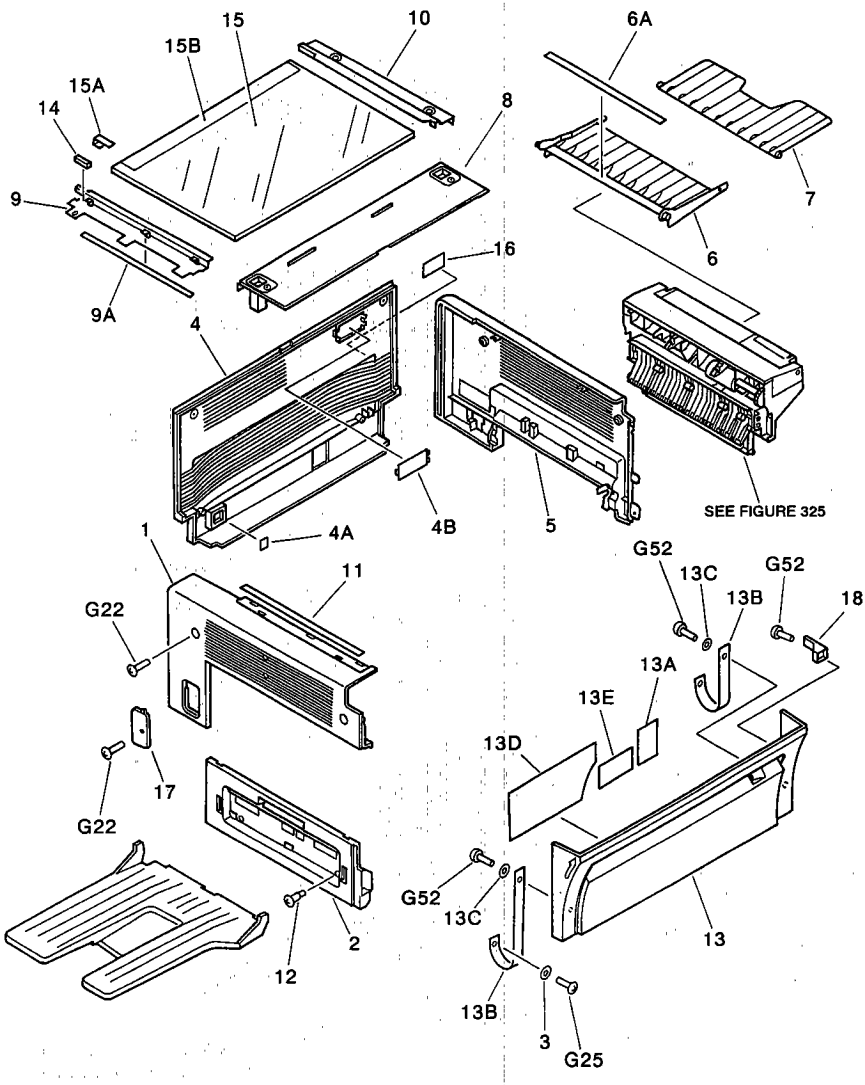

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
100 –	NPN		RF	EXTERNAL, COVERS, PANELS, ETC. ガイソウ カバー ブ	
1	FC1 – 5361 – 00P		1	PANEL, LEFT ヒダリ カバー	
2	FC1 – 5360 – 00P		1	PANEL, DELIVERY ハイシ カバー	
3	FA2 – 7162 – 000		2	PLAIN WASHERS バンド ワツシヤ	
4	FF2 – 6705 – 01P		1	PANEL, REAR ウシロ カバー	
4A	FC1 – 5358 – 00P		1	COVER, CONNECTOR, SORTER コネクタ カバー (ソータ)	
4B	FC1 – 5359 – 00P		1	COVER, CONNECTOR, ADF コネクタ カバー (ADF)	
5	FC1 – 0998 – 00P		1	PANEL, RIGHT ミギ カバー	
6	FF0 – 0066 – 01P		1	TRAY, MANUAL FEED テザシ トレイ	
6A	FC1 – 3544 – 00P		1	SHEET, TRAY トレイ シート	
7	FC1 – 0751 – 00P		1	TRAY, MANUAL FEED テザシ トレイ	
8	FC1 – 0997 – 00P		1	PANEL, UPPER, REAR ウエ ウシロ カバー	
9	FF2 – 0012 – 000		1	PLATE, WHITE ハクショク バン	
9A	FA9 – 1499 – 000		1	SPACER スペーサ	
10	FA6 – 5625 – 000		1	RETAINER, COPYBOARD GLASS ミギ ガラス オサエ	
11	FS8 – 8185 – 000		1	PLATE, WIDTH INDEX サイズ プレート (タテ)	
12	FS1 – 9003 – 000		2	SCREW, STEPPED, M4 ダンビス	
13	FG2 – 4181 – 00P		1	DOOR, FRONT マエ ドアー	
13A	FC1 – 3552 – 00P		1	LABEL, JAM BY – PASS ジャム バイパス メイハン	
13B	FA5 – 2121 – 000		2	STRAP, FRONT DOOR マエ ドアー ササエ テープ	
13C	FA2 – 7162 – 000		2	PLAIN WASHERS バンド ワツシヤ	
13D	FC1 – 3550 – 00P		1	LABEL, INSTRUCTION ソウサ セツメイ メイハン	
13E	FA0 – 0166 – 00P		1	LABEL, JAM RESET 1 ジャム ショリ メイハン (1)	
14	FA5 – 2164 – 000		3	SEAL, GLASS ガラス シール	
15	FF2 – 3951 – 000		1	GLASS, COPYBOARD ゲンコウダイ ガラス	
15A	FA9 – 1768 – 000		1	SPRING, LEAF イタバネ	
15B	FS8 – 8189 – 000		1	PLATE, LENGTH INDEX サイズ プレート (ヨコ)	
16	FC1 – 5370 – 00P		1	PLATE, LATING, 220V テイカク メイハン	220V
	FC1 – 5371 – 00P		1	PLATE, RATING, 240V テイカク メイハン	240V
17	FA6 – 6867 – 000		1	COVER, VR チョウセイ ヨウ フタ	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
100 – 18	FA0 – 0186 – 00P		1	BLOCK, DOOR LOCK ドア コテイ ブロック	

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FIGURE 101 MACHINE FRONT PLATE
本体前側板

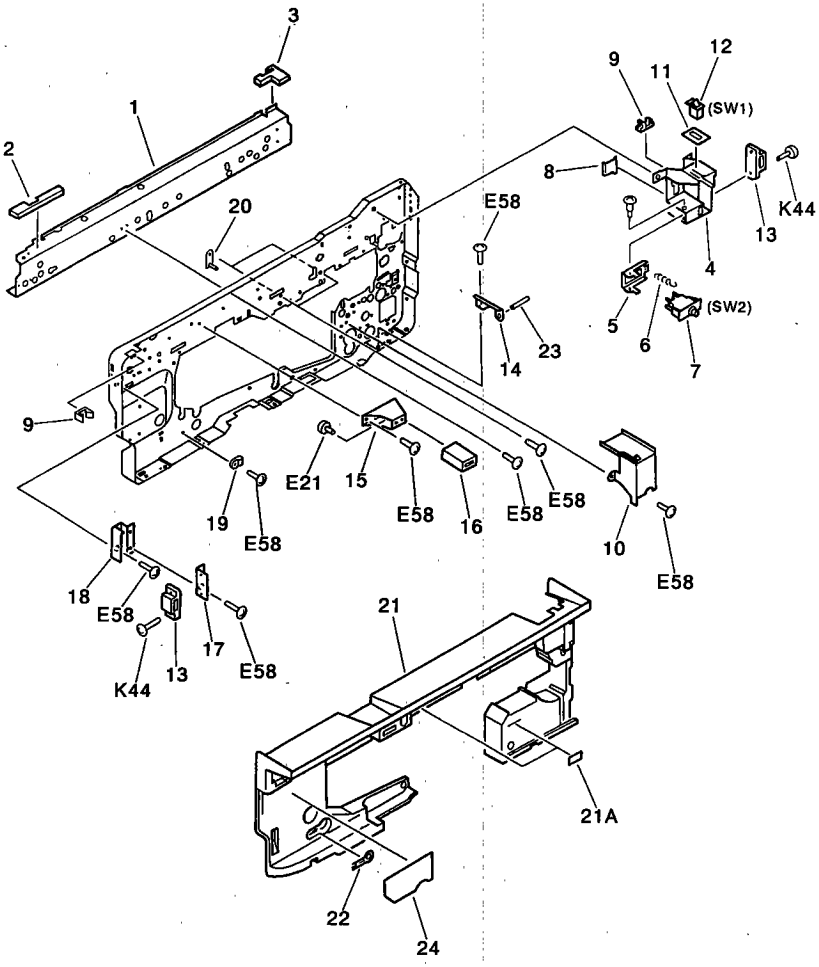

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
101 –	NPN		RF	MACHINE FRONT PLATE ホンタイ マエ ソクバン	
1	FC1 – 0968 – 00P		1	RAIL, FRONT マエ レール	
2	FA5 – 2105 – 000		1	SEAL, GLASS, 1 ガラス シール 1	
3	FA5 – 2106 – 000		1	SEAL, GLASS, 2 ガラス シール (2)	
4	FC1 – 0928 – 00P		1	MOUNT, MAIN SWITCH メイン スイッチ ダイ	
5	FC1 – 0929 – 00P		1	HOLDER, MAIN SWITCH メイン スイッチ ホルダ	
6	FS4 – 2037 – 00P		1	SPRING, TENSION ヒッパリ バネ	
7	WC2 – 0137 – 000		1	SWITCH, PUSHBUTTON プッシュ スイッチ	SW2
8	FA5 – 2048 – 000		1	PLATE, MICROSWITCH マイクロ スイッチ オシイタ	
9	WT2 – 0295 – 000		3	GUIDE, CABLE. ケーブル ガイド	
10	FC1 – 0978 – 00P		1	SUPPORT, DEV.RAIL ゲンゾウ レール シダイ	
11	FC1 – 3540 – 00P		1	COVER, SWITCH スイッチ カバー	
12	FH0 – 0068 – 00P		1	SWITCH, ROCKER シーソ スイッチ	SW1
13	XZ9 – 0251 – 000		2	CATCH, MAGNET マグネット キャッチ	
14	FC1 – 0999 – 00P		2	HIGE, FRONT PANEL マエ カバー ヒンジ	
15	FC1 – 0982 – 00P		1	MOUNT, COUNTER カウンタ ダイ	
16	WP1 – 0019 – 000		1	COUNTER カウンタ	
17	FA5 – 2099 – 000		1	PLATE, MOUNTING, MAGNET マグネット キャッチ ダイ	
18	FC1 – 0983 – 00P		1	PLATE, CATCH, MAGNET マグネット キャッチ シダイ	
19	X66 – 6646 – 000		1	TIE, CABLE ソクセン バンド	
20	FF1 – 9403 – 030		2	PIVOT, MOUNTING イチギメ バン	
21	FF2 – 5607 – 01P		1	COVER, INNER ウチ カバー	
21A	FS3 – 8377 – 000		2	LABEL, "WARNING, HIGH VOLTAGE" コウアツ チユウイ メイハン	
22	FB1 – 0733 – 000		1	BRUSH, CLEANING クリーナ ブラシ	
23	FA9 – 1785 – 000		2	PIN HINGE, FRONT PANEL ピン	
24	FC1 – 3551 – 00P		1	LABEL, JAM REMOVAL 2 ジャム カイジョ ラベル (2)	

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FIGURE 102 INTERNAL COMPONENTS 1
本体機械内部 (1)

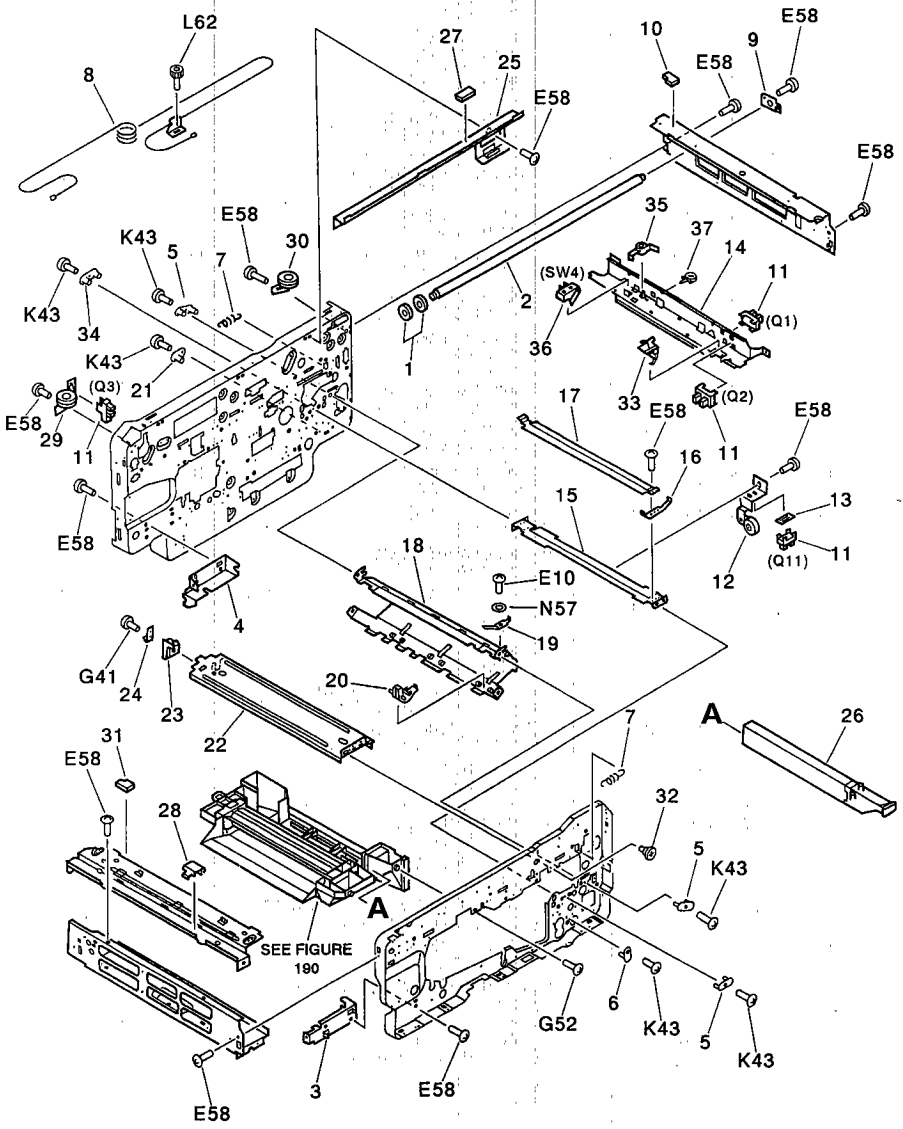

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
102 –	NPN		RF	INTERNAL COMPONENTS 1 ホンタイ キカイ ナイブ 1	
1	FA3 – 8493 – 000		2	RING, FELT オイルパツド	
2	FA5 – 2071 – 000	N	1	RAIL, SCANNER DRIVE コウガクケイ レール	
3	FA5 – 2091 – 000		1	RAIL, FIXING ASS'Y, FRONT テイチヤクキ レール (マエ)	
4	FA5 – 2092 – 000		1	RAIL, FIXING ASS'Y, REAR テイチヤクキ レール (ウシロ)	
5	FA5 – 2126 – 000		3	PIVOT, MOUNTING フロート ピン	
6	FA1 – 9546 – 000		1	PIN イチギメ ダボ	
7	FS2 – 2768 – 000		2	SPRING, TENSION ヒツパリ バネ	
8	FA5 – 2073 – 000		1	CABLE, SCANNER DRIVE コウガクケイ ワイヤ	
9	FA5 – 2072 – 000		1	PLATE, HOLDER, RAIL レール トメバン	
10	FA5 – 2108 – 020		1	SEAL, GLASS, 4 ガラス シール 4	
11	FH0 – 0055 – 00P		4	PHOTO – INTERRUPTER フォトインタラプタ	Q1, Q2, Q3, Q11
12	FF0 – 0051 – 00P		1	PAPER SENSOR UNIT カミ ケンチ ブ	
13	FH0 – 0058 – 00P		1	SHEET センサ シート	
14	FF2 – 5599 – 00P		1	GUIDE, UPPER, MANUAL FEED テザシ ウエ ガイド	
15	FC1 – 0694 – 00P		1	GUIDE, LOWER シタ ガイド	
16	FC1 – 3564 – 00P		1	SPRING, LEAF イタ バネ	
17	FC1 – 0693 – 00P		1	GUIDE, UPPER ウエ ガイド	
18	FF2 – 5597 – 00P		1	GUIDE, PAPER FEED ペーパ ガイド	
19	FC1 – 0988 – 00P		1	SPRING, LEAF イタ バネ	
20	FA0 – 0155 – 00P		3	PAPER GUIDE ペーパ ガイド	
21	FA3 – 9120 – 000		3	PIN GUIDE フロート ピン	
22	FC1 – 0710 – 00P	N	1	RAIL, DEVELOPING UNIT ゲンゾウキ レール	
23	FF1 – 9412 – 000		1	HOLDER, ELECTRODE デンキヨク ホルダー	
24	FA5 – 1802 – 000		1	BIAS, SOCKET, FASTON バイアス フアストン	
25	FC1 – 0977 – 00P		1	RETAINER, COPYBOAD GLASS, REAR ウシロ ガラス ササエ	
26	FF2 – 5595 – 00P		1	FILTER, OZONE オゾン フイルタ	
27	FA6 – 5660 – 000		1	SEAL, BLANKING アナカクシ シール	
28	FC1 – 1014 – 00P		1	CLAMP ソクセン オサエ	
29	FF2 – 5596 – 00P		1	PULLEY プーリ バン	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
102 – 30	FF2 – 6704 – 00P		1	PULLEY UNIT プーリ ダイ	
31	FA5 – 2107 – 000		1	SEAL, GLASS, 3 ガラス シール 3	
32	FS1 – 9169 – 000		2	SCREW, STEPPED, M3 ダンピス	
33	FC1 – 0717 – 00P		1	LEVER, SENSOR センサ レバー	
34	FA5 – 2163 – 000		1	PIN GUIDE 2 フロート ピン 2	
35	FC1 – 0720 – 00P		1	LEVER, MANUAL GUIDE SENSING カイヘイ ケンチ レバー	
36	WC4 – 0081 – 000		1	MICROSWITCH マイクロ スイツチ	SW4
37	WT2 – 0434 – 000		4	CLIP ロツキング ワイヤ サドル	

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FIGURE 103 INTERNAL COMPONENTS 2
本体機械内部 (2)

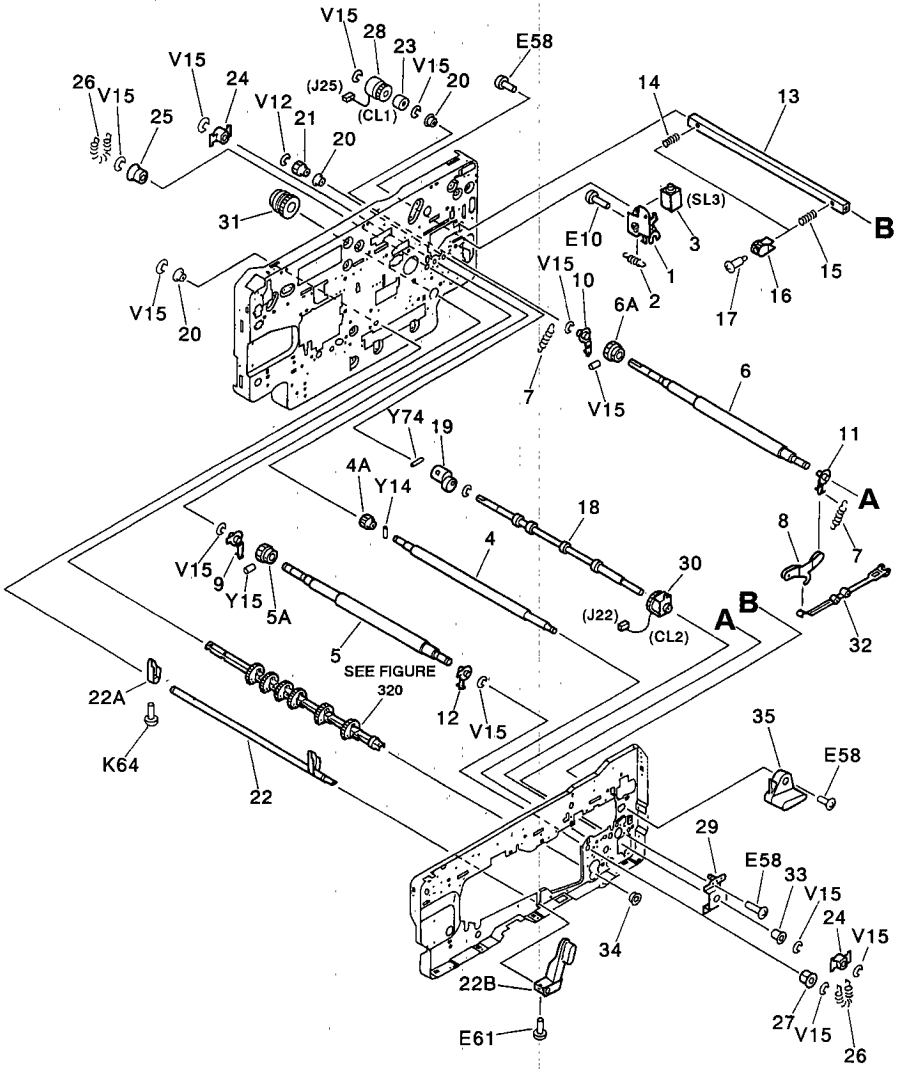

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
103 –	NPN		RF	INTERNAL COMPONENTS 2 ホンタイ キカイ ナイブ 2	
1	FF2 – 7418 – 000		1	CLUTCH LEVER UNIT クラッチ レバー ユニット	
2	FC1 – 5364 – 00P		2	SPRING, TENSION ヒツパリ バネ	
3	FH0 – 0096 – 00P		1	SOLENOID ソレノイド	SL3
4	FG2 – 2975 – 00P		2	ROLLER, REGISTRATION, UPPER ウエ レジスト ローラ	
4A	FS2 – 0122 – 000		1	GEAR, 26T 26T ギア	
5	FG2 – 2988 – 00P		1	ROLLER, REGISTRATION, LOWER(L) シタ レジスト ローラ (ヒダリ)	
5A	96 – 0093 – 000		1	GEAR, 32T 32T ギア	
6	FG2 – 2974 – 00P		1	ROLLER, REGISTRATION, LOWER(R) シタ レジスト ローラ (ミギ)	
6A	96 – 0093 – 000		1	GEAR, 32T 32T ギア	
7	FC1 – 5402 – 00P		2	SPRING, TENSION ヒッパリ バネ	
8	FC1 – 0993 – 00P		2	LINK レンケツ リンク	
9	FC1 – 0779 – 00P		1	CAM カム	
10	FC1 – 0681 – 00P		1	CAM, REAR カム (ウシロ)	
11	FC1 – 0680 – 00P		1	CAM, FRONT カム (マエ)	
12	FC1 – 0679 – 00P		2	CAM カム	
13	FC1 – 0713 – 00P		1	SHAFT ジク	
14	FS4 – 2039 – 00P		1	SPRING, COMPRESSION アッシュク バネ	
15	FS4 – 2038 – 00P		1	SPRING, COMPRESSION アッシュク バネ	
16	FC1 – 0712 – 00P		2	CAM カム	
17	FS2 – 9374 – 00P		2	SCREW, STEPPED, M4 ダンビス	
18	FC1 – 3561 – 00P		1	ROLLER, PAPER FEED ハンソウ ローラ	
19	FF2 – 5581 – 00P		1	CLUTCH, SPRING スプリング クラッチ	
20	FS1 – 1202 – 000		3	BUSHING ブツシング	
21	FC1 – 3562 – 00P		1	GEAR, 16T 16T ギア	
22	FF2 – 7417 – 00P		1	LEVER, RELEASE カイジョ レバー	
22A	FA5 – 1912 – 000		2	CAM, FEEDER ASSEMBLY RELEASE ハンソウ カイジヨ カム	
22B	FC1 – 5369 – 00P		1	LEVER, FEEDER ASS'Y RELEASE ハンソウ カイジョ レバー	
23	[illegible]			[illegible]	

5 – 000 | 4 | BUSHING ジクブケー | | | 24 | FS1-8 1595

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
103 – 25	FS1 – 1402 – 000		2	BUSHING ブッシング	
26	FS2 – 2783 – 000		2	SPRING, TENSION ヒッパリ バネ	
27	FA1 – 0056 – 000		2	BUSHING ブッシング	
28	FH0 – 0092 – 00P		1	CLUTCH, EM デンジ クラッチ	CL1
29	FF2 – 5805 – 00P		1	MOUNT, GEAR ギア トリツケ ダイ	
30	FH7 – 5353 – 010		1	CLUTCH, EM デンジ クラッチ	CL2
31	FC1 – 1013 – 00P		1	CLUTCH, MECHANICAL P クラツチ	
32	FC1 – 0992 – 00P		2	STRAP, TAPE アツカイジヨ テープ	
33	FC1 – 0239 – 000		1	COVER, SCREW, 1 ネジ カバー (1)	
34	FS1 – 1411 – 000		1	BUSHING ブッシング	
35	FC1 – 0980 – 00P		1	HANDLE, DEV. ゲンゾウ カアツ ノブ	

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FIGURE 104 MACHINE REAR PLATE
本体後側板

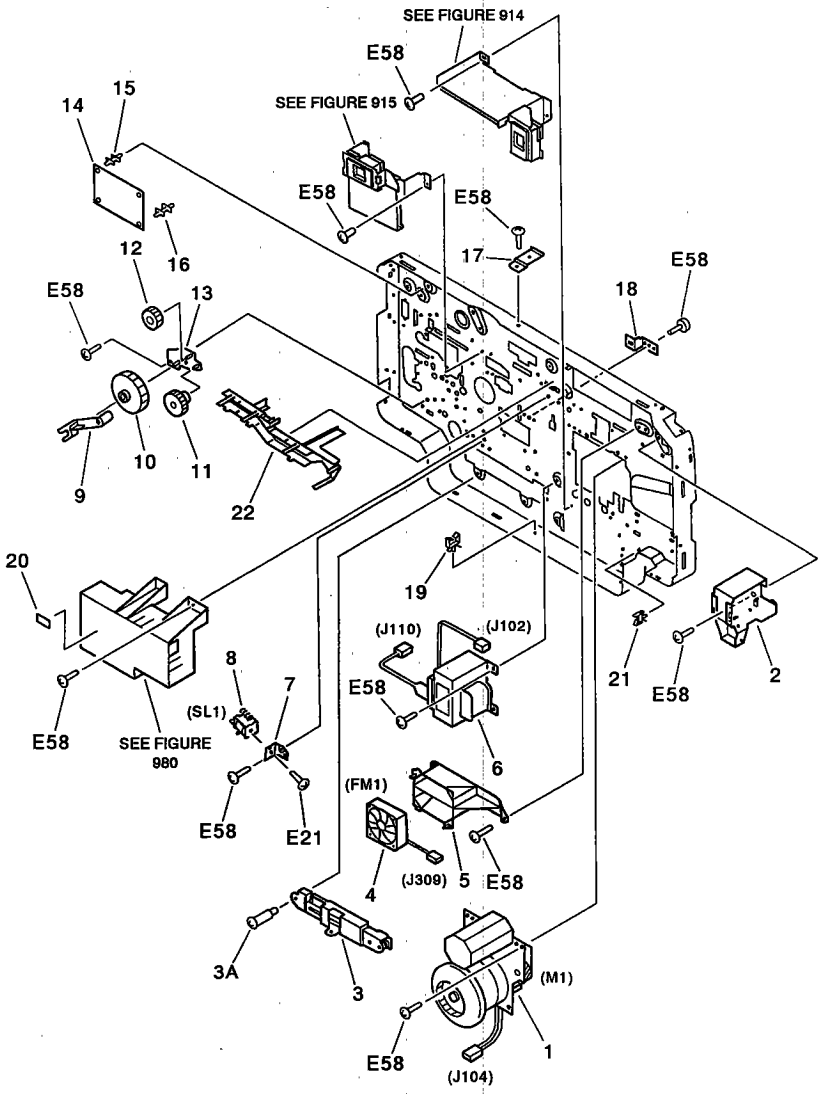

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
104 –	NPN		RF	MACHINE REAR PLATE ホンタイ ウシロ ソクバン	
1	FG2 – 2997 – 00P		1	MAIN MOTOR, 220V 50HZ メイン モータ	220V, M1
	FG2 – 2998 – 00P		1	MAIN MOTOR, 240V 50HZ メイン モータ	240V, M1
2	FC1 – 0986 – 00P		2	MOUNT, DF DF ダイ	
3	FF2 – 6703 – 00P		1	PAPER SIZE SENSOR UNIT カミ サイズ センサ	
3A	FS2 – 9373 – 00P		2	SCREW ダンビス	
4	FH0 – 0093 – 00P		1	FAN ファン	FM1
5	FC1 – 3570 – 00P		1	MOUNT, FAN ファン トリツケ ダイ	
6	FH0 – 0090 – 00P		1	TRANSFORMER, POWER, 220V デンゲン トランス	220V
	FH0 – 0091 – 00P		1	TRANSFORMER, POWER, 240V デンゲン トランス	240V
7	FC1 – 0127 – 000		1	ROLLER, 2 シュウドウ ローラ	
8	FH7 – 5141 – 000		1	SOLENOID, DC24V ソレノイド	SL1
9	FC1 – 3563 – 00P		1	ARM, CHANGING キリカエ アーム	
10	FS4 – 0033 – 00P		1	GEAR, 57T 57T ギア	
11	FS4 – 0035 – 00P		1	GEAR, 40T 40T ギア	
12	FS4 – 0034 – 00P		1	GEAR, 32T 32T ギア	
13	FF2 – 5600 – 00P		1	MOUNT, GEAR キュウシ クドウバン	
14	FH0 – 0089 – 00P		1	LAMP REGULATOR PCB ASSEMBLY ランプ レギュレータ	
15	VT2 – 0001 – 004		2	SUPPORT, PCB ロツキング サポート	
16	VT2 – 0001 – 006		2	SUPPORT, PCB ロツキング サポート	
17	FA5 – 2066 – 000		1	PLATE, HOLDER, GLASS ガラス オサエ イタ	
18	FA6 – 5605 – 000		1	PLATE, STOP, CLUTCH クラツチ マクリドメ	
19	WT2 – 0179 – 000		1	CLIP, CABLE ロツキング ワイヤ サドル	
20	FS3 – 8377 – 000		1	LABEL, "WARNING, HIGH VOLTAGE" コウアツ チユウイ メイハン	
21	WT2 – 0110 – 000		3	CLIP, CABLE ロツキング ワイヤ サドル	
22	FA0 – 0188 – 00P		1	GUIDE, CABLE ケーブル ガイド	

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FIGURE 105 MACHINE BOTTOM PLATE
本体底板

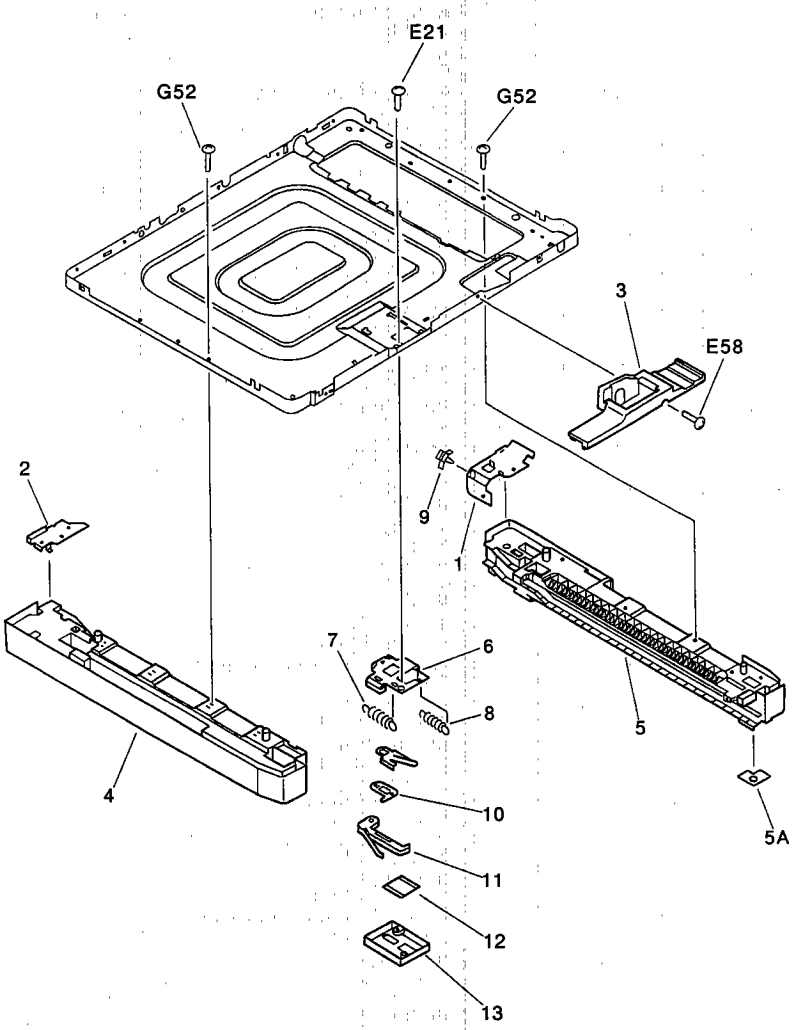

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
105 –	NPN		RF	MACHINE BOTTOM PLATE ホンタイ ソコイタ	
1	FC1 – 0966 – 00P		1	BRACKET, RIGHT REAR ミギ アシ カバー	
2	FC1 – 0965 – 00P		1	BRACKET, LEFT REAR ヒダリ アシ カバー	
3	FC1 – 1015 – 00P		1	COVER, INNER, 2 ウチ カバー (2)	
4	FF2 – 5594 – 01P		1	FOOT, LEFT ヒダリ アシ	
5	FF2 – 7419 – 01P		1	FOOT, RIGHT ミギ アシ	
5A	FC1 – 0970 – 00P		2	RUBBER, FOOT ゴム アシ	
6	FF2 – 6701 – 00P		1	MOUNT, CASSETTE STOPPER ストッパ トリツケ ダイ	
7	FS4 – 2035 – 00P		1	SPRING, TENSION ヒッパリ バネ	
8	FS4 – 2034 – 00P		1	SPRING, TENSION ヒッパリ バネ	
9	WT2 – 0179 – 000		1	CLIP, CABLE ロツキング ワイヤ サドル	
10	FC1 – 9002 – 00P		1	LEVER, CAM カム レバー	
11	FC1 – 0898 – 00P		1	HOOK フック	
12	FC1 – 0899 – 00P		1	CAM カム	
13	FC1 – 0901 – 00P		1	COVER, CASSETTE STOPPER ストッパ カバー	

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FIGURE 110 POWER CORD TERMINAL ASSEMBLY
電源コード台部

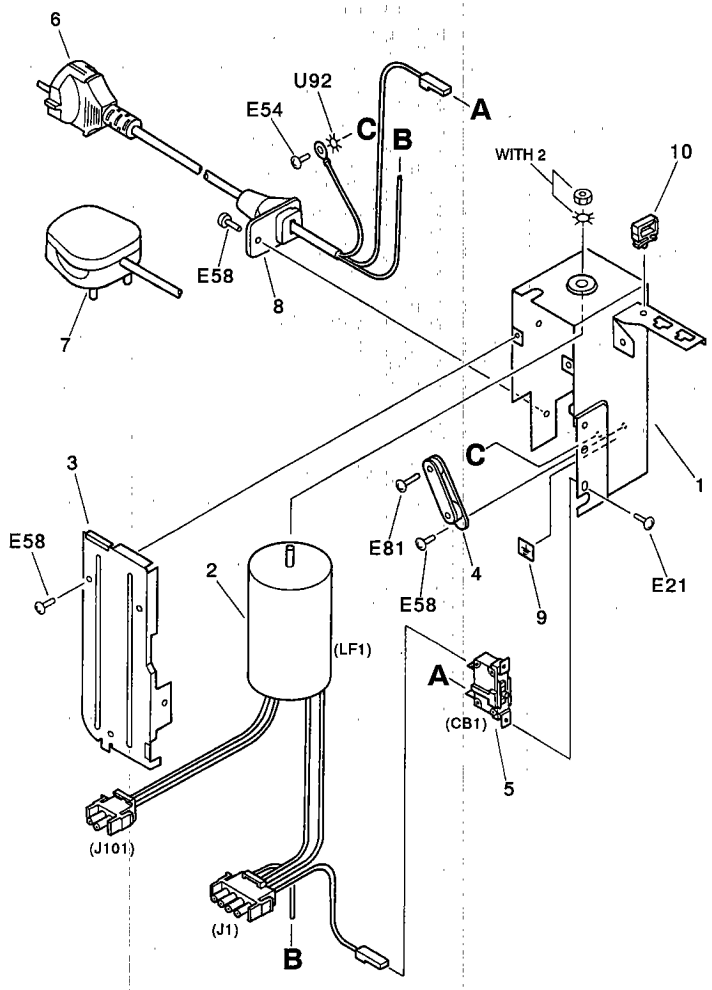

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
110 –	FG2 – 3004 – 00P		1	POWER CORD TERMINAL ASSEMBLY デンゲン コード ダイ ブ	220V
	FG2 – 3005 – 00P		1	POWER CORD TERMINAL ASSEMBLY デンゲン コード ダイ ブ	240V
1	FF2 – 5603 – 00P		1	MOUNT, POWER CORD デンゲン コード ダイ	
2	FH0 – 0061 – 00P		1	FILTER, NOISE ノイズ フィルタ	LF1
3	FC1 – 0989 – 00P		1	PLATE, COVER, NOISE FILTER ノイズ フィルタ カバー	
4	FH2 – 5043 – 000		1	CLAMP, POWER CORD コード クリツプ	
5	WD3 – 0125 – 000		1	CIRCUIT BREAKER サーキット ブレーカ	CB1
6	FH0 – 0062 – 00P		1	CORD, POWER デンゲン コード	220V
7	FH0 – 0064 – 00P		1	CORD, POWER デンゲン コード	240V
8	WT2 – 0178 – 000		1	RELIEF, STRAIN コード ブツシュ	240V
9	96 – 8212 – 000		1	LABEL, GROUND アース メイハン	
10	WT2 – 0110 – 000		1	CLIP, CABLE ロツキング ワイヤ サドル	

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FIGURE 130 CONTROL PANEL ASSEMBLY
操作部

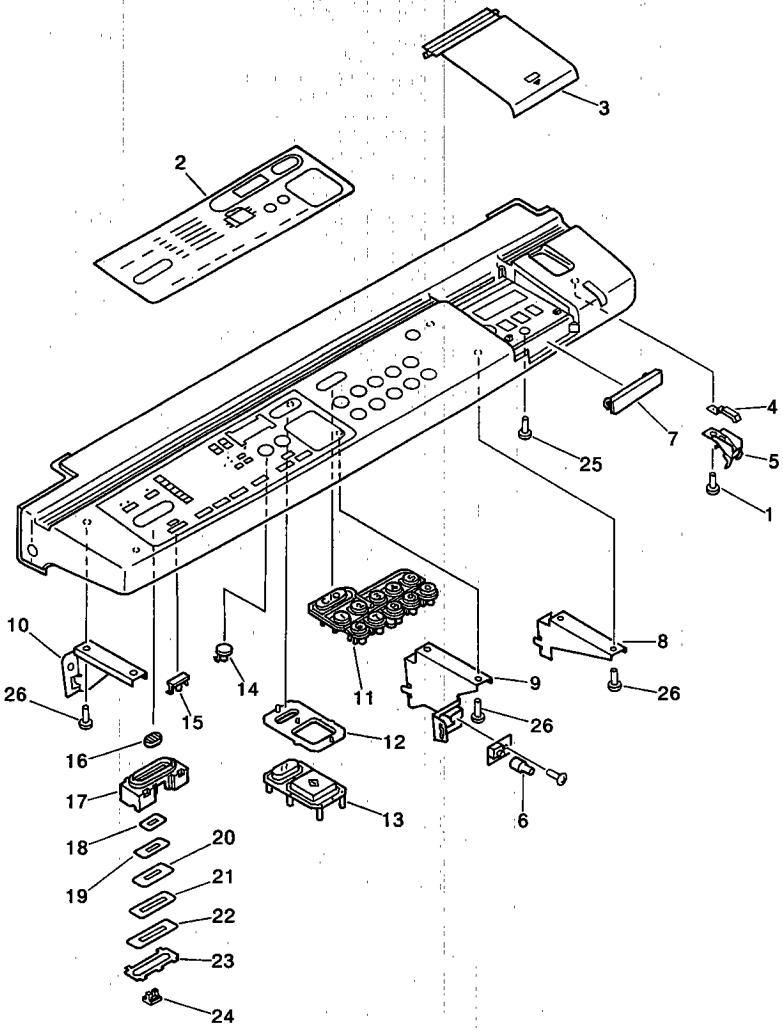

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
130 –	FG2 – 2970 – 01P		1	CONTROL PANEL ASSEMBLY ソウサ ブ	
1	FC1 – 5398 – 00P		1	SCREW, SELF – TAPPING, M2.2X5.5 タッピン ネジ	
2	FC1 – 5374 – 00P		1	PANEL,OPERATION KEY ソウサキー パネル	
3	FC1 – 5373 – 00P		1	COVER, CONTROL – CARD コントロール カード カバー	
4	FC1 – 5387 – 00P		1	GLASS, LED ON/OFF ヒョウジブ ガラス	
5	FC1 – 5388 – 00P		1	REFLECTOR, LED ON/OFF ヒョウジブ ハンシャ バン	
6	FC1 – 1010 – 00P		1	KNOB ツマミ	
7	FC1 – 5386 – 00P		1	COVER カバー	
8	FC1 – 1007 – 00P		1	SUPPORT, CONTROL PANEL, RIGHT ソウサブ ササエ (ミギ)	
9	FC1 – 1008 – 01P		1	SUPPORT, CONTROL PANEL, CENTER ソウサブ ササエ (ナカ)	
10	FC1 – 1009 – 00P		1	SUPPORT, CONTROL PANEL, LEFT ソウサブ ササエ (ヒダリ)	
11	FC1 – 5375 – 00P		1	KEY TOP, NUMERIC スウジ キー	
12	FC1 – 5381 – 00P		1	FRAME, KEY TOP キー ワク	
13	FC1 – 5378 – 00P		1	KEY TOP, PRINT/RESET キー (プリント リセット)	
14	FC1 – 5385 – 00P		1	CARRYER, AUTOZOOM オート ズーム ガイド	
15	FC1 – 5395 – 00P		9	PLUNGER プランジャ	
16	FC1 – 5383 – 00P		1	KNOB, SLIDE スライド テイコウ ツマミ	
17	FC1 – 5384 – 00P		1	FRAME, RESISTOR スライド テイコウ ワク	
18	FC1 – 5393 – 00P		1	DUST SHIELD, 5 ダスト シールド 5	
19	FC1 – 5392 – 00P		1	DUST SHIELD, 4 ダスト シールド 4	
20	FC1 – 5391 – 00P		1	DUST SHIELD, 3 ダスト シールド 3	
21	FC1 – 5390 – 00P		1	DUST SHIELD, 2 ダスト シールド 2	
22	FC1 – 5394 – 00P		1	DUST SHIELD ダスト シールド	
23	FC1 – 5389 – 00P		1	DUST SHIELD, 1 ダスト シールド 1	
24	FC1 – 5382 – 00P		1	ADAPTER, RESISTOR スライド テイコウ アダプタ	
25	FC1 – 5396 – 00P		17	SCREW, SELF – TAPPING, M2.9X6.4 タッピン ネジ	
26	FC1 – 5397 – 00P		6	SCREW, SELF – TAPPING, M2.9X8 タッピン ネジ	

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FIGURE 160 COPYBOARD COVER ASSEMBLY
原稿台カバー部

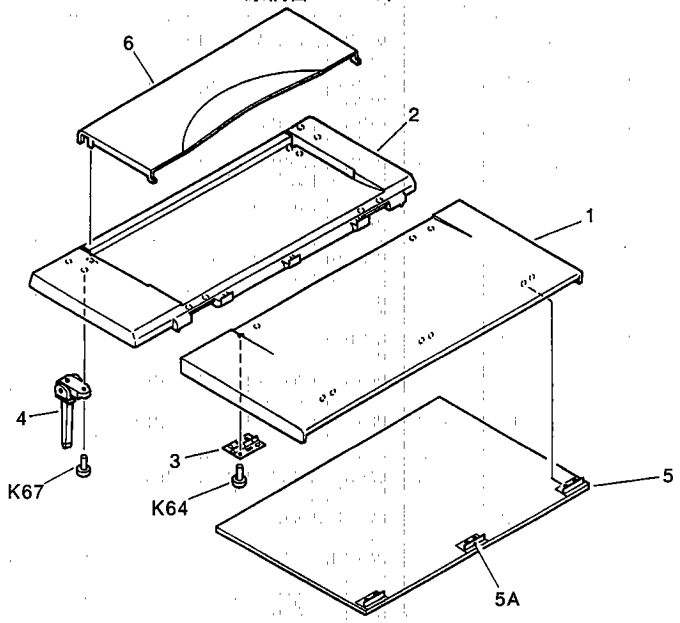

FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
160 –	FG2 – 1332 – 000		1	COPYBOARD COVER ASSEMBLY ゲンコウダイ カバー ブ	
1	FA6 – 5639 – 000		1	COVER, COPYBOARD, FRONT ゲンコウ オサエ イタ (マエ)	
2	FA6 – 5640 – 000		1	COVER, COPYBOARD, REAR ゲンコウ オサエ イタ (ウシロ)	
3	FA5 – 1185 – 000		2	PLATE, HINGE ヒンジ バン	
4	FA6 – 5650 – 000		2	HINGE, COPYBOARD COVER ヒンジ	
5	FF2 – 3941 – 000		1	CUSHION ASS'Y, COPYBOARD COVER アツチヤク シート ユニット	
5A	FA3 – 9055 – 000		3	PLATE, CUSHION MOUNTING シート トリツケ イタ	
6	FA6 – 5641 – 000		1	POCKET ポケット	

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FIGURE 190 EXHAUST FAN ASSEMBLY
排熱ファン部

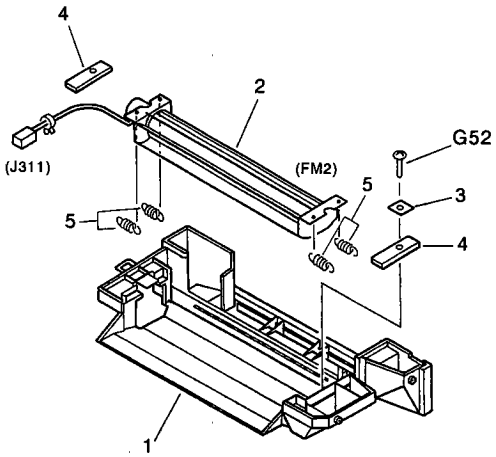

FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
190 –	FG2 – 3024 – 01P		1	EXHAUST FAN ASSEMBLY ハイネツ フアン ブ	
1	FC1 – 0893 – 01P		1	DUCT ダクト	
2	FH0 – 0058 – 00P		1	FAN ファン	FM2
3	FC1 – 5367 – 00P		1	PLATE ファン トリツケ ザ	
4	FC1 – 5366 – 00P		2	DAMPER, FAN ファン ダンパ	
5	FA0 – 0175 – 00P		4	SPRING, TENSION ヒッパリ バネ	

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FIGURE 210 LENS MOUNT ASSEMBLY (1/2)
レンズ台部 (1/2)

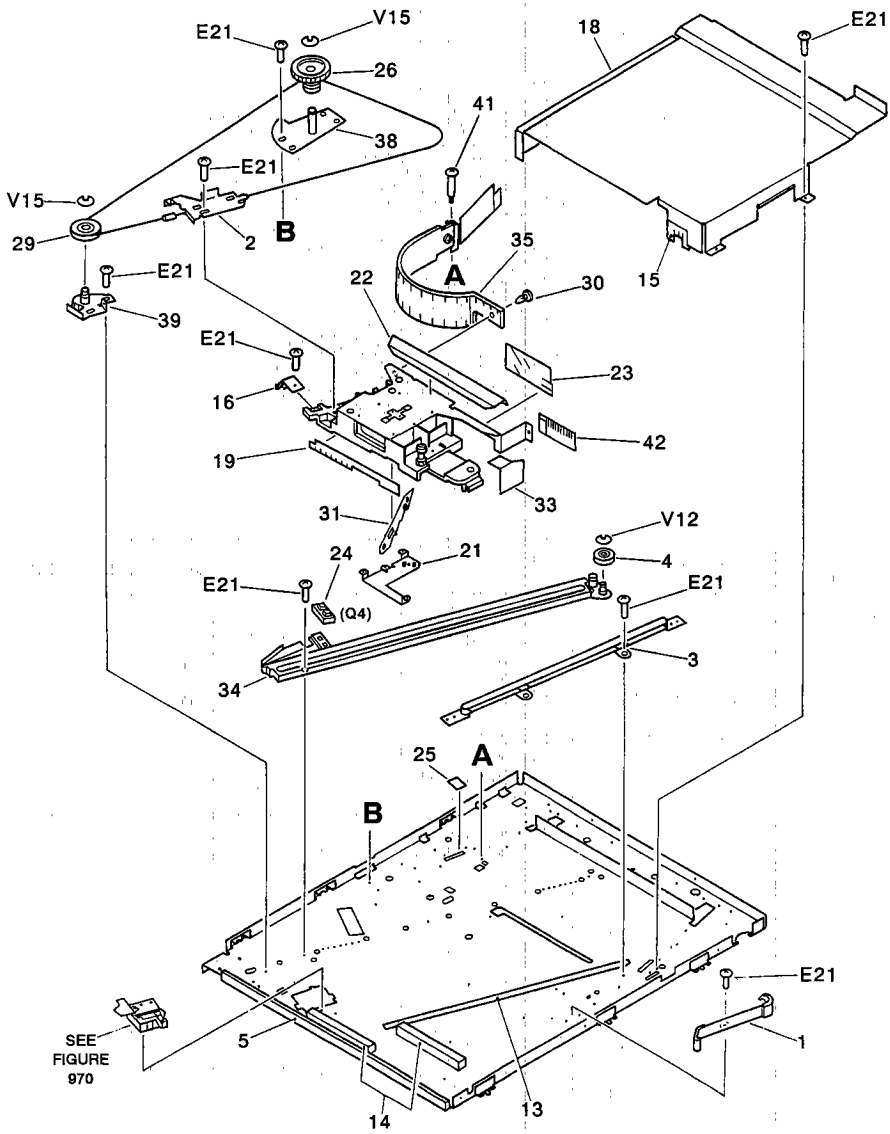

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FIGURE 210 LENS MOUNT ASSEMBLY (2/2)
レンズ台部 (2/2)

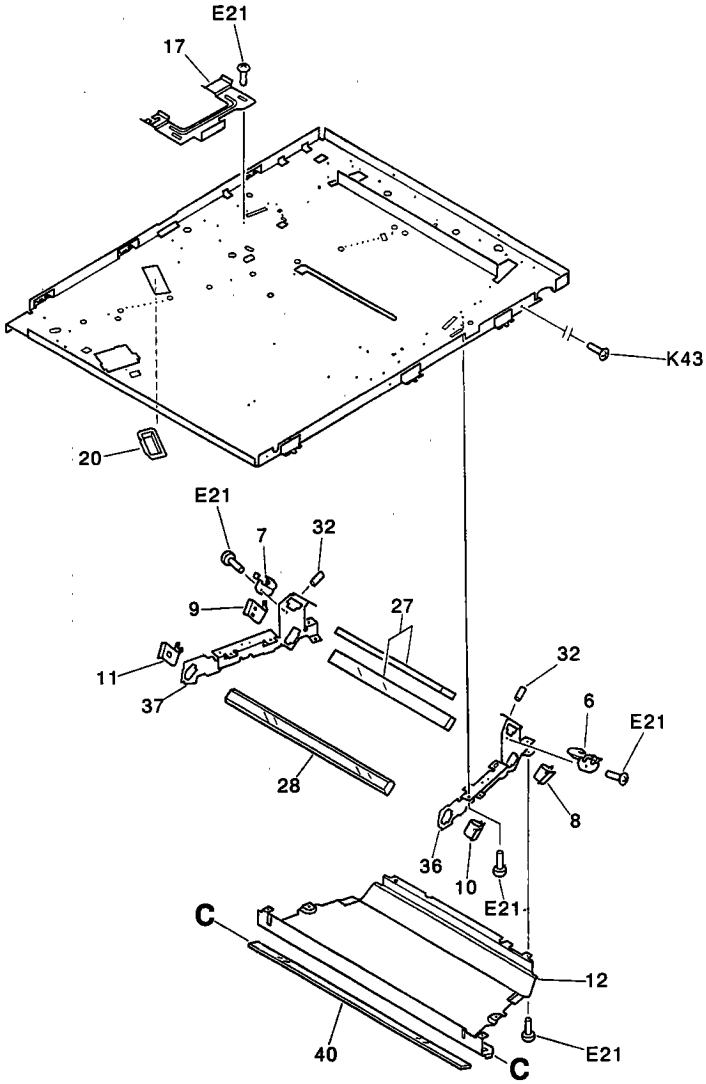

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
210 –	NPN		RF	LENS MOUNT ASSEMBLY レンズ ダイ ブ	
1	FF2 – 1100 – 000		1	CLEANER UNIT, MIRROR ミラー セイソウ コウグ	
2	FC1 – 0633 – 00P		1	PLATE, LENS DRIVE レンズ クドウ イタ	
3	FA5 – 1580 – 000		1	GUIDE, CAM カム ミゾ	
4	FC1 – 0638 – 00P		1	PULLEY プーリ	
5	FA5 – 1589 – 000		1	SEAL, LENS MOUNT レンズ ダイ シール	
6	FA5 – 1593 – 000		1	SPRING, LEAF, FRONT ミラー 4 オサエ バネ (マエ)	
7	FA5 – 1594 – 000		1	SPRING, LEAF, REAR ミラー 4 オサエ バネ (ウシロ)	
8	FA5 – 1595 – 000		1	SPRING, LEAF, FRONT ミラー 5 オサエ バネ (マエ)	
9	FA5 – 1596 – 000		1	SPRING, LEAF, REAR ミラー 5 オサエ バネ (ウシロ)	
10	FA5 – 1597 – 000		1	SPRING, LEAF, FRONT ミラー 6 オサエ バネ (マエ)	
11	FA5 – 1598 – 000		1	SPRING, LEAF, REAR ミラー 6 オサエ バネ (ウシロ)	
12	FA5 – 1599 – 000		1	COVER, DUST – PROOF ボウ ジン カバー	
13	FA5 – 1600 – 000		1	SHEET, SLIDE スベリ シート	
14	FA5 – 1601 – 000		2	SEAL, LIGHT BLOCKING シャコウ ザイ	
15	FA5 – 1611 – 020		1	LIGHT BLOCKING シャコウ ザイ	
16	FA6 – 5188 – 000		2	SPRING, LEAF レンズ ダイ オサエ バネ	
17	FA5 – 1606 – 000		1	RETAINER, CORD コード オサエ	
18	FA5 – 1603 – 000		1	COVER, LENS レンズ フード	
19	FA5 – 1564 – 020		1	SHEET, LIGHT BLOCKING 1 シャコウ シート 1	
20	FC1 – 5365 – 00P		1	COVER, SENSOR センサ カバー	
21	FC1 – 0635 – 00P		1	SUPPORT, BLANK CAM ブランク カム ササエ	
22	FA5 – 1568 – 000		1	SEAL, LIGHT BLOCKING 2 シャコウ ザイ 2	
23	FA5 – 1608 – 000		1	SHEET, LIGHT BLOCKING 3 シャコウ シート 3	
24	FH0 – 0055 – 00P		1	PHOTO – INTERUPTER フォトインタラプタ	
25	FA5 – 1615 – 000		1	LIGHT BLOCKING シャコウ ザイ	
26	FS2 – 0868 – 000		1	GEAR, 54T 54T ギア	
27	FN1 – 4214 – 000		2	MIRROR 4/5 ダイ 4,5 ミラー	
28	FN1 – 4215 – 000		1	MIRROR 6 ダイ 6 ミラー	
29	FC1 – 0639 – 00P		1	PULLEY, GUIDE ガイド プーリ	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
210 – 30	FA9 – 1699 – 000		2	CLIP クリップ	
31	FC1 – 0634 – 00P		1	CAM, BLANK ブランク カム	
32	X31 – 6240 – 880		3	SETSCREW, M4X8 ロツカク アナツキ トメネジ	
33	FA5 – 1613 – 000		1	SHEET, LIGHT BLOCKING シヤコウ シート	
34	FF2 – 5583 – 00P		1	RAIL, LENS レンズ レール	
35	FF2 – 5585 – 00P		1	CURTAIN, LIGHT BLOCKING シヤコウ カーテン	
36	FF1 – 9381 – 000		1	MOUNT, MIRROR FRONT ミラー ダイ (マエ)	
37	FF1 – 9382 – 000		1	MOUNT, MIRROR REAR ミラー ダイ (ウシロ)	
38	FF1 – 9435 – 000		1	MOUNT, PULLEY 1 プリー ダイ (1)	
39	FF2 – 5586 – 00P		1	MOUNT, PULLEY プーリ ダイ	
40	FN1 – 4216 – 000		1	GLASS, DUSTPROOF ボウジン ガラス	
41	FS1 – 9006 – 000		1	SCREW, STEPPED, M4 ダンピス	
42	FA5 – 1567 – 000		1	SEAL, LIGHT BLOCKING 1 シャコウ ザイ (1)	

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FIGURE 220 SCANNER DRIVE ASSEMBLY
光学系駆動部

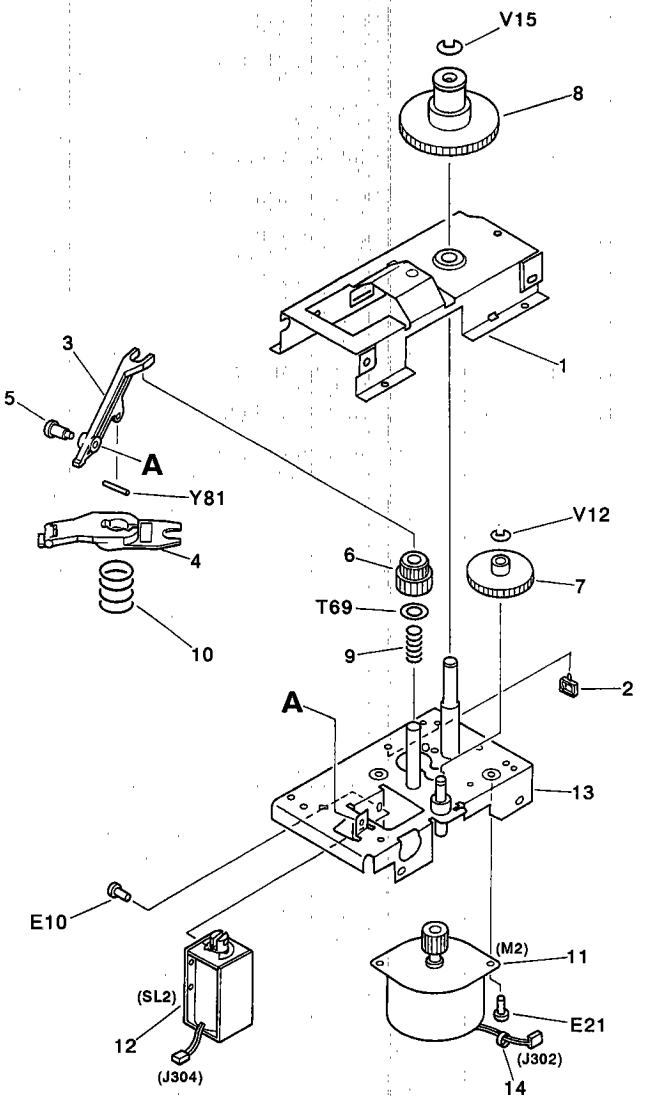

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
220 –	FG2 – 2986 – 01P		1	SCANNER DRIVE ASSEMBLY コウガクケイ クドウ ブ	
1	FC1 – 0730 – 01P		1	MOUNT, UPPER コウガク クドウ キダイ (ウエ)	
2	WT2 – 0248 – 000		1	CLIP, CABLE ケーブル クリップ	
3	FA5 – 1656 – 000		1	ARM, CHENGING キリカエ アーム	
4	FF2 – 5601 – 00P		1	LEVER, BRAKE ブレーキ レバー	
5	FS1 – 9073 – 000		1	SCREW, STEPPED, M4 ダンビス	
6	FS2 – 0867 – 000		1	GEAR 25T/20T 25T/20T ギア	
7	FS2 – 0868 – 000		1	GEAR 48T 48T ギア	
8	FS2 – 0869 – 000		1	GEAR 72T 72T ギア	
9	FS2 – 2766 – 000		1	SPRING, COMPRESSION アツシユク バネ	
10	FS2 – 2767 – 000		1	SPRING, COMPRESSION アツシユク バネ	
11	FH0 – 0065 – 01P		1	MOTOR, STEPPING ステッピング モータ	M2
12	FH7 – 5142 – 000		1	SOLENOID, DC24V ソレノイド	SL2
13	FF2 – 5602 – 01P		1	MOUNT, LOWER コウガク クドウ キダイ (シタ)	
14	WT2 – 0030 – 000		1	TIE, CABLE ソクセン バンド	

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FIGURE 250 DRUM DRIVE ASSEMBLY
ドラム駆動部

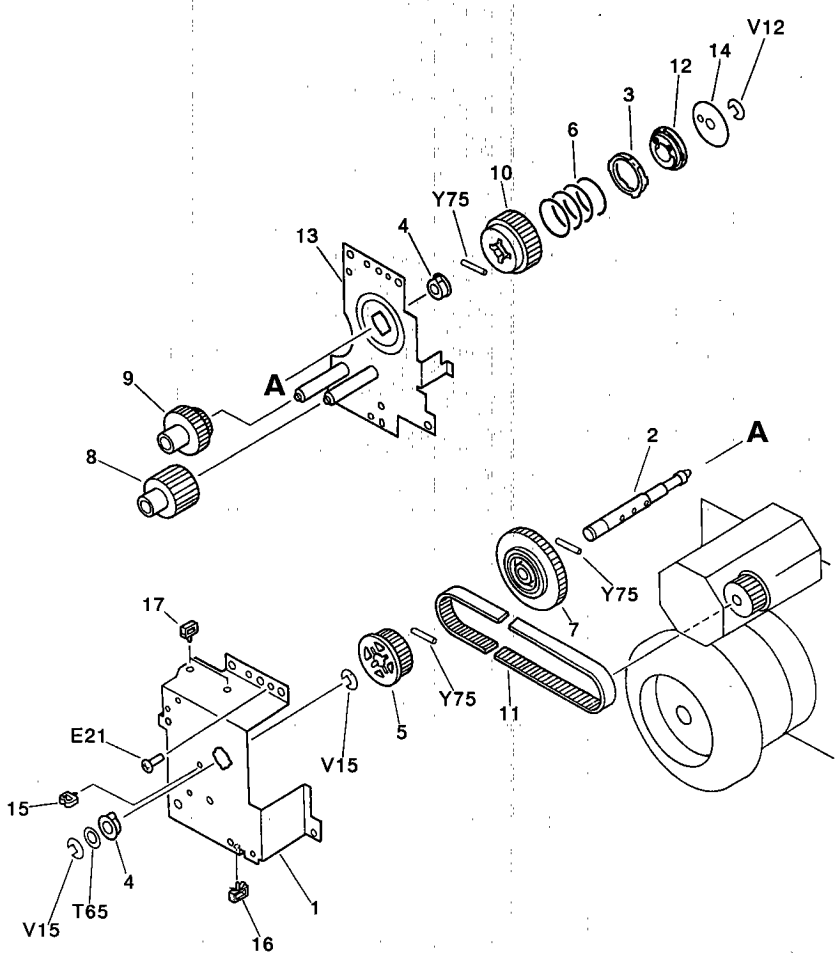

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
250 –	FG2 – 2984 – 01P		1	DRUM DRIVE ASSEMBLY ドラム クドウ ブ	
1	FC1 – 0726 – 01P		1	PLATE, GEAR COVER ドラム クドウ カバー	
2	FA5 – 1983 – 010		1	SHAFT, DRUM DRIVE ドラム クドウ ジク	
3	FA5 – 1984 – 000		1	RING リミツタ バン	
4	FS1 – 1189 – 000		2	BUSHING ブッシング	
5	FS1 – 3293 – 000		1	PULLEY, 30T 30T プーリ	
6	FS2 – 2770 – 000		1	SPRING, COMPRESSION アツシユク バネ	
7	FS2 – 0878 – 000		1	GEAR, 60T 60T ギア	
8	FS1 – 0036 – 00P		1	GEAR, 29T 29T ギア	
9	FS1 – 0037 – 00P		1	GEAR, 17T/34T 17T/34T ギア	
10	FS2 – 0881 – 020		1	GEAR, 40T 40T ギア	
11	XF9 – 0210 – 000		1	BELT タイミング ベルト	
12	FF1 – 9414 – 020		1	DISK, DRUM DRIVE ドラム クドウ バン	
13	FF2 – 5580 – 01P		1	PLATE, SPINDLE ドラム クドウ キバン	
14	FA5 – 1988 – 000		1	PLATE, CLOCK ドラム クドウ エンバン	
15	WT2 – 0434 – 000		2	CLIP ロツキング ワイヤ サドル	
16	WT2 – 0317 – 000		1	CLIP, CABLE ロツキング ワイヤ サドル	
17	WT2 – 0110 – 000		2	CLIP, CABLE ロツキング ワイヤ サドル	

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FIGURE 300 CASSETTE
カセット

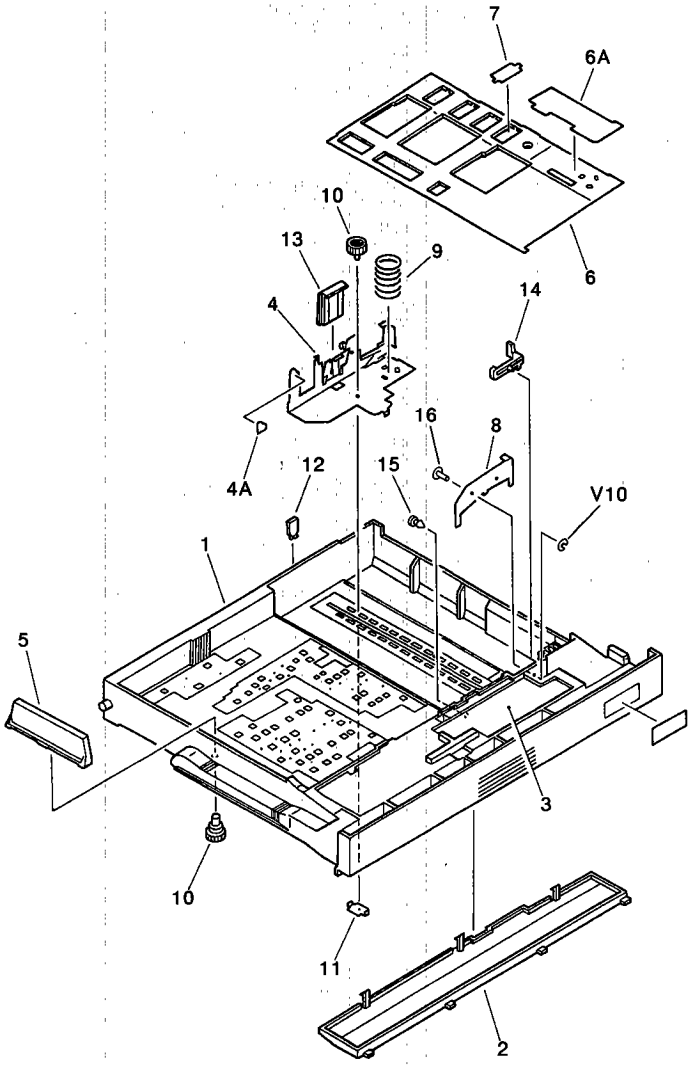

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
300 –	NPN		RF	CASSETTE カセット	
1	FC1 – 0910 – 00P	N	1	BODY, CASSETTE カセット オケ	
2	FC1 – 0914 – 00P		1	COVER, LOWER カバー (シタ)	
3	FA0 – 0162 – 00P		1	LABEL, CASSETTE カセット ラベル	
4	FF2 – 5622 – 00P		1	PLATE, HOLD – DOWN TAB, REAR ブンリ ツメ (ウシロ)	
4A	FS4 – 8120 – 000		1	LEBEL ラベル	
5	FC1 – 0916 – 00P		2	PLATE, SIZE, REAR コウタン キセイ バン	
6	FF2 – 5621 – 00P		1	PLATE, PAPER LIFTING ナカ イタ	
6A	FC1 – 0913 – 00P		1	PLATE, FRICTION ブンリ シート	
7	FF1 – 9430 – 000		4	PLATE, BLANKING メカクシ バン	
8	FA0 – 0163 – 00P		1	PLATE, HOLD – DOWN TAB, FRONT ブンリ ツメ (マエ)	
9	FS2 – 2785 – 000		2	SPRING, COMPRESSION アツシユク バネ	
10	FC1 – 0917 – 00P		3	SCREW, M4 コテイ ネジ	
11	FC1 – 0918 – 00P		1	PLATE, NUT イタ ナット	
12	FA5 – 2231 – 000		3	BLOCK, SIZE サイズ ケンチ コマ	
13	FF2 – 5620 – 00P		1	PLATE, PAPER CONTACT カセット サイド オサエ	
14	FC1 – 0915 – 00P		1	LEVER, LINK リンク レバー	
15	FA9 – 1781 – 000		1	STOP, RUBBER ストツパ	
16	FA9 – 1779 – 000		1	PIN ツメ シジク	

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FIGURE 315 CASSETTE TRAY ASSEMBLY
カセットトレイ

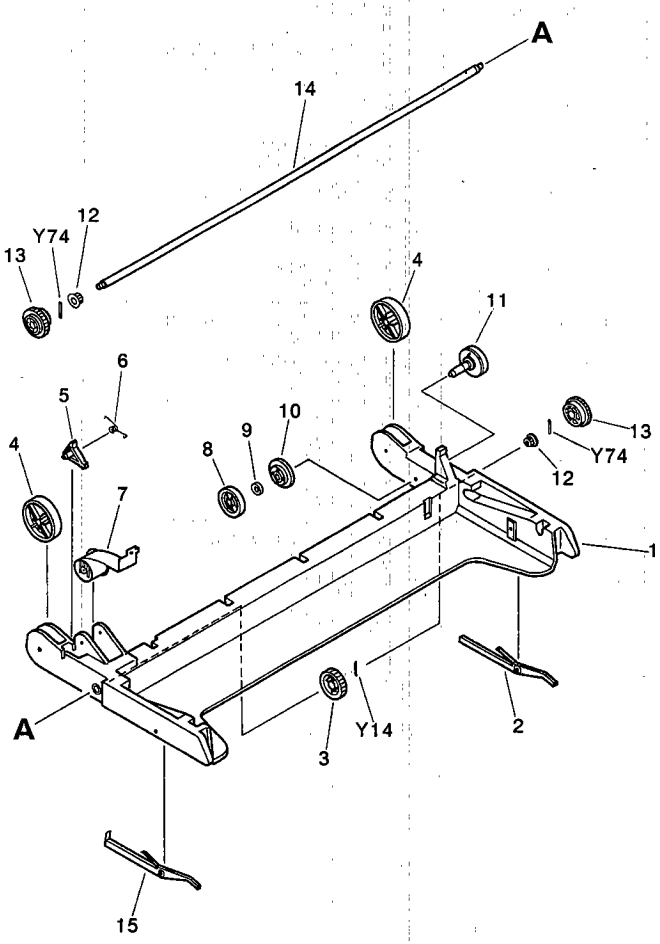

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
315 –	FG2 – 2989 – 01P		1	CASSETTE TRAY ASSEMBLY カセット トレイ	
1	FC1 – 0780 – 00P		1	TRAY, CASSETTE カセット トレイ	
2	FC1 – 0788 – 01P		1	LEVER, STOP ストップ レバー	
3	FC1 – 0790 – 00P		1	GEAR, 28T 28T ギア	
4	FC1 – 0782 – 00P		2	PULLEY プーリ	
5	FC1 – 0789 – 01P		1	LEVER, STOP, LEFT ストップ レバー (ヒダリ)	
6	FC1 – 0787 – 00P		2	SPRING, TORSION ネジリ バネ	
7	FF2 – 5623 – 00P		1	DRUM, SPRING バネ ドラム	
8	FC1 – 0792 – 00P		1	GEAR, 28T 28T ギア	
9	FC1 – 5405 – 00P		1	SILENCER サイレンサ	
10	FC1 – 0791 – 00P		1	DISK, BRAKE, DRIVE ブレーキ ギア	
11	FC1 – 0794 – 00P		1	CLUTCH, BRAKE ブレーキ クラッチ	
12	FS1 – 1205 – 000		2	BUSHING ブッシング	
13	FC1 – 0781 – 00P		2	GEAR, 18T 18T ギア	
14	FC1 – 0783 – 00P		1	SHAFT, GEAR ギア ジク	
15	FA0 – 0169 – 00P		1	LEVER, STOP ストップ レバー	

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FIGURE 320 PAPER PICK-UP SHAFT ASSEMBLY
給紙軸

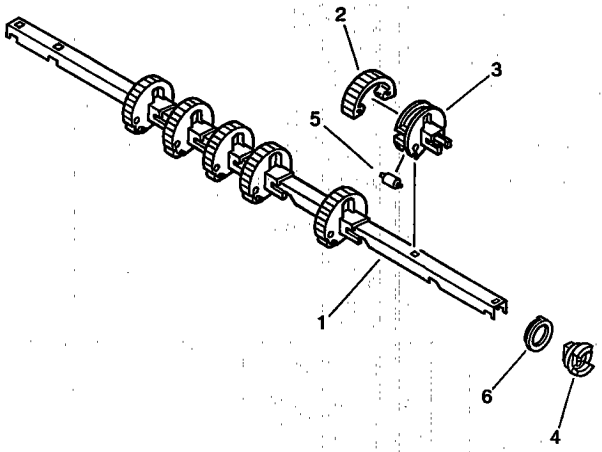

FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
320 –	FG2 – 2973 – 00P		1	PAPER PICK – UP SHAFT ASSEMBLY キユウシ ジク ブ	
1	FC1 – 0675 – 00P		1	SHAFT, PICK – UP ROLLER キュウシ ジク	
2	FC1 – 0676 – 00P		6	PICK – UP ROLLER キュウシ ローラ	
3	FC1 – 0677 – 00P		6	MOUNT, PICK – UP ROLLER キュウシ ローラ ウケ	
4	FC1 – 3541 – 00P		1	BUSHING ブッシング	
5	FA2 – 8227 – 000		6	ROLLER, PRESSURE オサエ ローラ	
6	FS1 – 1411 – 000		1	BUSHING ブッシング	

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FIGURE 325 MULTI FEED TRAY ASSEMBLY
マルチ手差し部

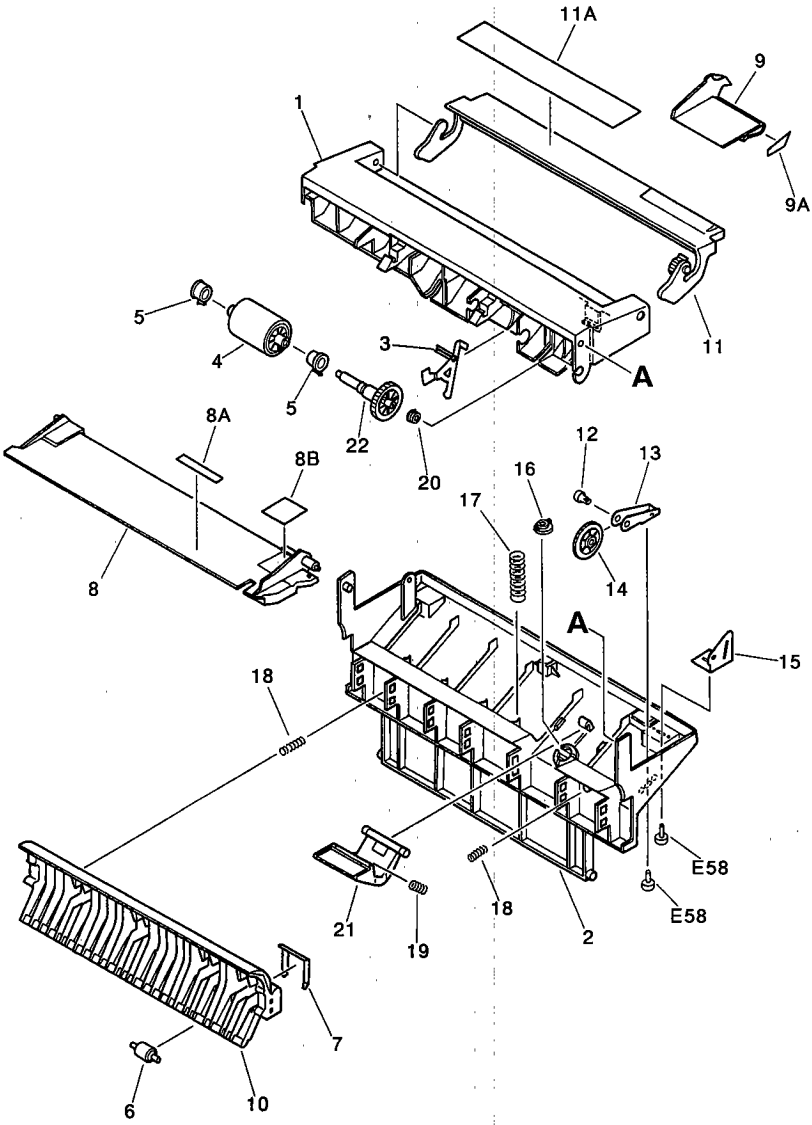

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
325 –	FG2 – 2987 – 01P		1	MULTI FEED TRAY ASSEMBLY マルチ テザシ ブ	
1	FF2 – 5619 – 00P		1	HANDLE トッテ	
2	FC1 – 0744 – 01P		1	COVER, LOWER, MULTI マルチ シタ カバー	
3	FC1 – 0740 – 00P		1	LEVER, PAPER SENSING カミ ケンチ レバー	
4	FC1 – 0741 – 00P		1	ROLLER, FEEDER フィーダ ローラ	
5	FC1 – 0770 – 00P		2	BUSHING ブッシング	
6	FC1 – 0772 – 00P		4	ROLLER ピンチ ローラ	
7	FC1 – 0758 – 00P		4	SPRING, LEAF イタ バネ	
8	FF2 – 5576 – 00P		1	TRAY トレイ	
8A	FC1 – 0771 – 00P		1	SHEET, TRAY トレイ シート	
8B	FC1 – 3548 – 00P		1	LABEL, MANUAL FEED テサシ ラベル	
9	FF2 – 6700 – 00P		1	GUIDE, PAPER ペーパ ガイド	
9A	FC1 – 3553 – 00P		1	LABEL ラベル	
10	FC1 – 0746 – 00P		1	GUIDE Uターン ガイド	
11	FF2 – 6702 – 00P		1	COVER カバー	
11A	FC1 – 3554 – 00P		1	LABEL, PAPER SUPPLY ヨウシ ホキュウ ラベル	
12	FC1 – 0769 – 00P		1	PIN ピン	
13	FC1 – 5407 – 00P		1	MOUNT, GEAR ギア トリツケ ダイ	
14	FC1 – 0764 – 00P		1	GEAR, 32T 32T ギア	
15	FC1 – 0755 – 00P		1	PLATE, 1 プレート (1)	
16	FC1 – 0754 – 00P		1	CUSHION クッション	
17	FS4 – 2032 – 00P		2	SPRING, COMPRESSION アッシュク バネ	
18	FS4 – 2031 – 00P		2	SPRING, COMPRESSION アッシュク バネ	
19	FS4 – 2033 – 00P		1	SPRING, COMPRESSION アッシュク バネ	
20	FC1 – 0739 – 00P		3	BUSHING ブッシング	
21	FC1 – 0736 – 00P		1	FEEDER PAD キュウシ パッド	
22	FC1 – 0765 – 00P		1	GEAR, 34T 34T ギア	

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FIGURE 350 FEEDER ASSEMBLY
搬送部

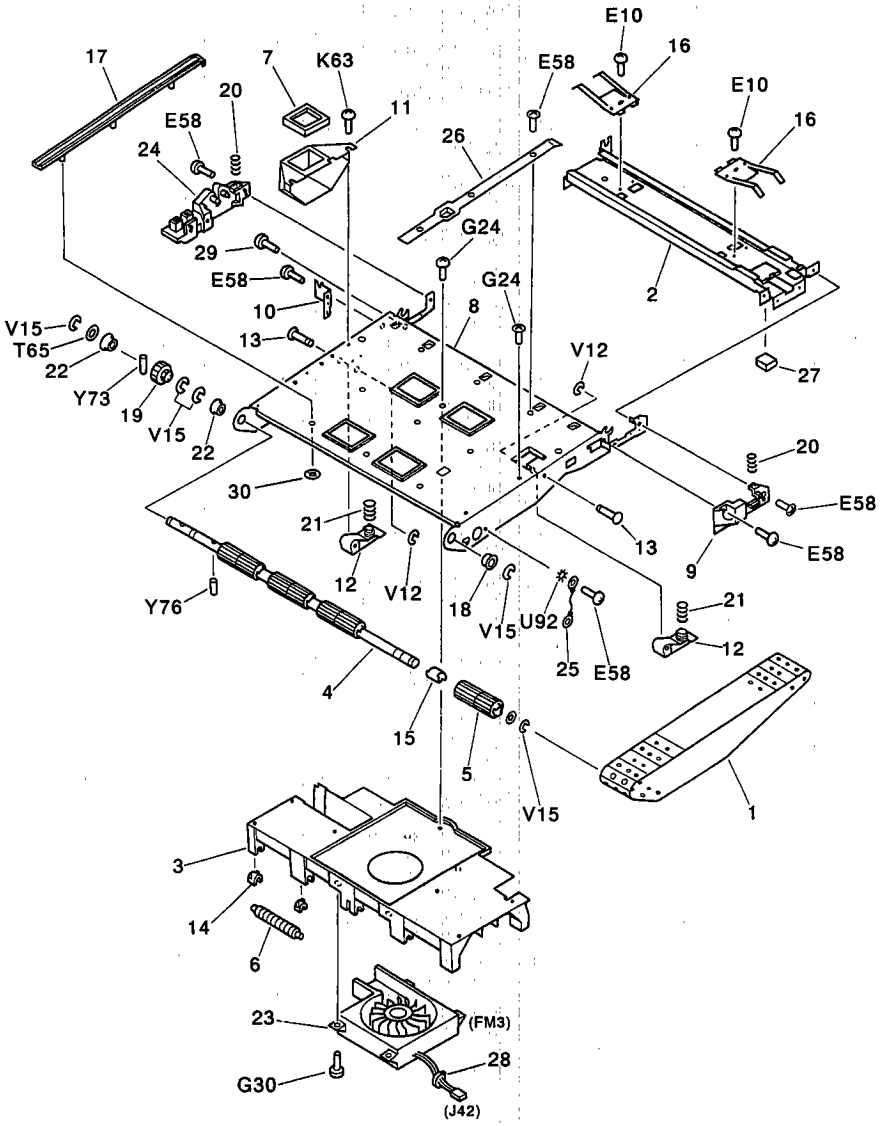

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
350 –	FG2 – 2978 – 01P		1	FEEDER ASSEMBLY ハンソウ ブ	
1	FA5 – 1891 – 000		2	BELT, PAPER FEED ハンソウ ベルト	
2	FA5 – 1892 – 020		1	PLATE, RAIL, CORONA ASSEMBLY タイデンキ ステイ	
3	FA5 – 1893 – 000		1	PLATE, ROLLER HOLD アイドラ シジダイ	
4	FA5 – 1894 – 000		1	SHAFT クドウ ジク	
5	FA5 – 1895 – 000		4	PULLEY プーリ	
6	FA5 – 1896 – 000		8	PULLEY プーリ	
7	FC1 – 0705 – 00P		1	SEAL, DUCT ダクト シール	
8	FA5 – 1898 – 000		1	PLATE, MOUNT, FEED ASSEMBLY ハンソウ キダイ	
9	FC1 – 0706 – 00P		1	PLATE, SIDE, FRONT ツキアテ バン	
10	FA5 – 1901 – 000		1	PLATE, SIDE, REAR ツキアテ バン	
11	FC1 – 1025 – 00P		1	DUCT ダクト	
12	FA5 – 1903 – 000		2	ARM, SPRING ハンソウブ ウケ カム	
13	FA5 – 1904 – 000		2	ROD, ARM ハンソウブ カム シジク	
14	FA5 – 1905 – 000		16	HOLDER, PULLEY ジクウケ	
15	FA5 – 1906 – 010		3	COUPLING カップリング	
16	FA5 – 1907 – 000		2	SPRING, LEAF ササエ バネ	
17	FA5 – 1908 – 000		2	GUIDE, PAPER FEED ハンソウ リブ	
18	FS1 – 1189 – 000		1	BUSHING ブッシング	
19	FS2 – 0887 – 000		1	GEAR, 20T 20T ギア	
20	FS2 – 2782 – 000		2	SPRING, COMPRESSION アツシユク バネ	
21	FS2 – 2773 – 000		2	SPRING, COMPRESSION アツシユク バネ	
22	FS1 – 1202 – 000		2	BUSHING ブツシング	
23	FH7 – 1529 – 000		1	FAN, DC24V ファン	FM3
24	FH2 – 9039 – 030		1	CONNECTOR, TRANSFER CORONA テンシヤ コネクタ	
25	FF2 – 0666 – 000		1	CABLE, GROUNDING アース ケーブル	
26	FA5 – 1909 – 000		1	GUIDE, PAPER, FEED, FRONT ハンソウ リブ(マエ)	
27	FA5 – 2160 – 000		1	CUSHION クツシヨン	
28	WT2 – 0030 – 000		1	TIE, CABLE ソクセン バンド	
29	XA9 – 0192 – 000		1	SCREW, W/TOOTHED WASHER, M4X6 キクザツキ バインド ネジ	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
350 – 30	XA9 – 0134 – 000		6	NUT, PUSH プッシュナット	

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FIGURE 351 TRANSFER GUIDE ASSEMBLY
転写ガイド部

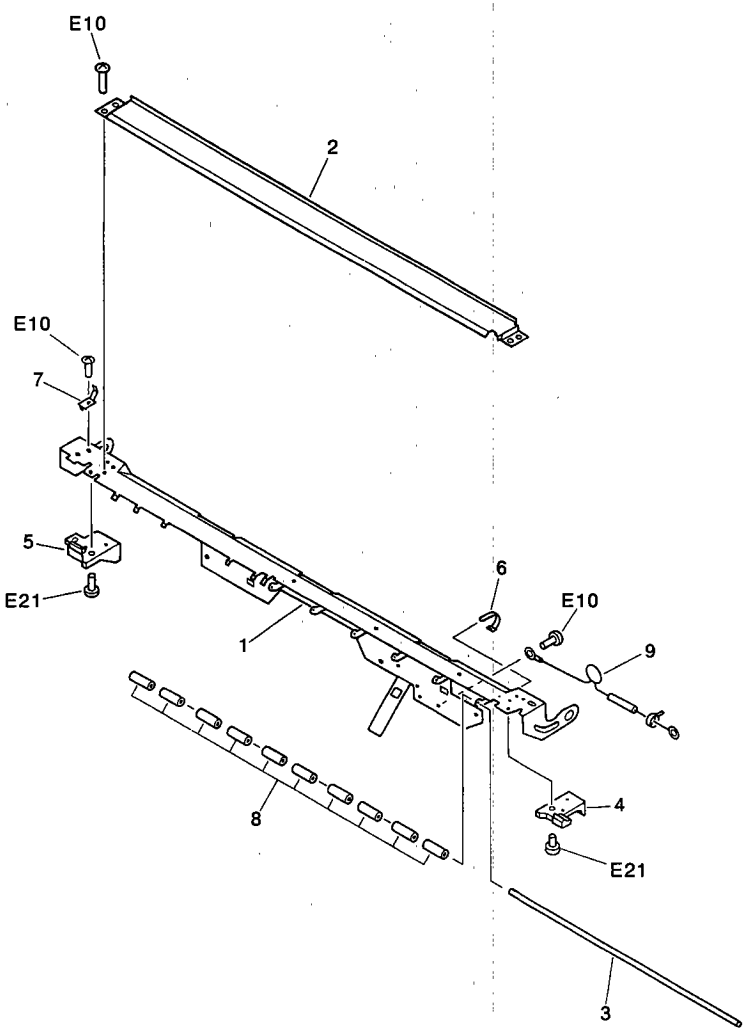

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
351 –	FG2 – 3019 – 00P		1	TRANSFER GUIDE ASSEMBLY テンシャ ガイド ブ	
1	FF2 – 7422 – 00P		1	PLATE, PAPER GUIDE, LOWER テンシャ シタ ガイド	
2	FA5 – 1852 – 000		1	PLATE, PAPER GUIDE, UPPER テンシヤ ウエ ガイド	
3	FA5 – 1853 – 000		1	ROD, ROLLER コロ ジク	
4	FA5 – 1854 – 000		1	BLOCK, FRONT ツキアテ ブロツク (マエ)	
5	FA5 – 1855 – 000		1	BLOCK, REAR ツキアテ ブロツク (ウシロ)	
6	WT2 – 0435 – 000		1	CLAMP, CORD コード クランプ	
7	FC1 – 0685 – 00P		1	SPRING, LEAF イタ バネ	
8	FA4 – 5594 – 000		10	ROLLER テンシヤ コロ	
9	FF2 – 0658 – 000		1	VARISTOR, 560V バリスタ	

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FIGURE 400 MIRROR ASSEMBLY 1
第1ミラー台部

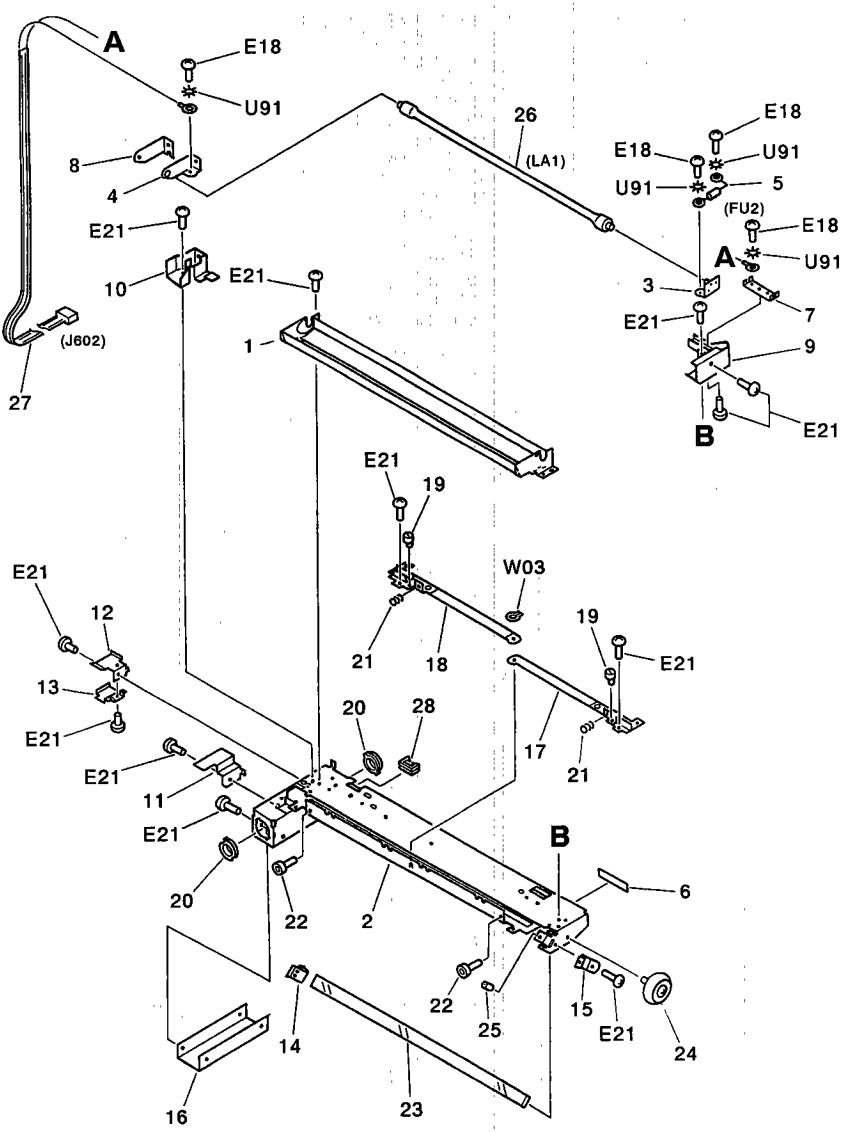

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
400 –	NPN		RF	MIRROR ASSEMBLY 1 ダイ 1 ミラー ブ	
1	FG9 – 3060 – 000		1	MIRROR UNIT ミラー ユニット	
2	FF2 – 1572 – 000	N	1	MOUNT, MIRROR 1 ダイ 1 ミラー ダイ	
3	FF1 – 9385 – 000		1	TERMINAL, LAMP, FRONT ランプ デンキヨク (マエ)	
4	FF1 – 9386 – 000		1	TERMINAL, LAMP, REAR ランプ デンキヨク (ウシロ)	
5	FF1 – 9387 – 000		1	FUSE, THERMAL, 103C° オンド ヒユーズ	FU2
6	FS4 – 8107 – 000		1	LABEL, THERMAL FUSE, 103° C, AL オンド ヒユーズ ラベル	
7	FA5 – 1628 – 000		1	TERMINAL, FUSE ヒユーズ デンキヨク	
8	FA5 – 1630 – 000		1	SPRING, LEAF, TERMINAL デンキヨク オサエ バン	
9	FA5 – 1631 – 020		1	MOUNT, TERMINAL, FRONT デンキヨク ダイ (マエ)	
10	FA5 – 1632 – 000		1	MOUNT, TERMINAL, REAR デンキヨク ダイ (ウシロ)	
11	FA5 – 1633 – 030		1	PLATE, LIGHT – BLOCKING シグナル プレート	
12	FA5 – 1634 – 000		1	RETAINER, CORD A コード オサエ (A)	
13	FA5 – 1635 – 000		1	RETAINER, CORD B コード オサエ (B)	
14	FA5 – 1636 – 000		1	SPRING, LEAF, REAR ミラー オサエ バネ (ウシロ)	
15	FA5 – 1637 – 000		1	SPRING, LEAF, FRONT ミラー オサエ バネ (マエ)	
16	FA5 – 1638 – 000		1	PLATE ホキヨウ バン	
17	FF2 – 1573 – 000		1	PLATE, SLIT (A) スリット (A)	
18	FF2 – 1574 – 000		1	PLATE, SLIT (B) スリット (B)	
19	FA5 – 1650 – 000		2	SCREW, ADJUSTING ヘンシン ネジ	
20	FC1 – 3568 – 00P		2	BUSHING ジク ウケ	
21	FS2 – 2788 – 000		2	SPRING, COMPRESSION アツシユク バネ	
22	FS5 – 9005 – 000		2	SCREW, ALLEN HEAD, M3X4.5 ロツカク アナツキ ボルト	
23	FN1 – 4212 – 000		1	MIRROR 1 ダイ 1 ミラー	
24	FA0 – 0167 – 00P		1	ROLLER, GUIDE ガイド ローラ	
25	X31 – 6241 – 080		1	SETSCREW, M4X8 ロツカク アナツキ トメネジ	
26	FH7 – 3114 – 000		1	HALOGEN LAMP, 175V 330W ハロゲン ランプ	LA1
27	FH2 – 5298 – 000		1	CABLE ソクセン	
28	WT2 – 0296 – 000		1	CLIP, CABLE エツジ サドル	

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FIGURE 401 MIRROR ASSEMBLY 2
第2ミラー台部

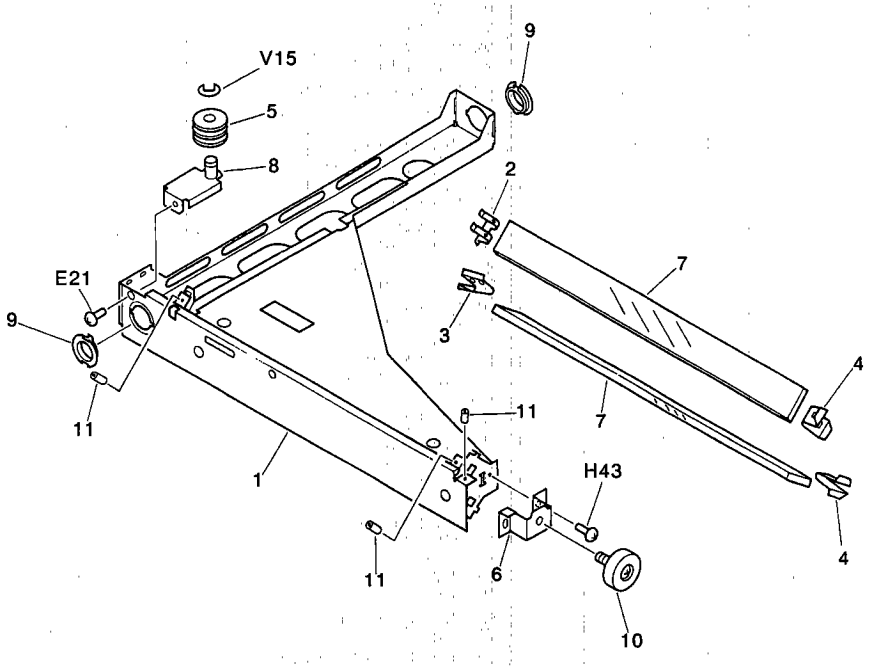

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
401 –	NPN		RF	MIRROR ASSEMBLY 2 ダイ 2 ミラー ダイブ	
1	FA5 – 1641 – 000	N	1	MOUNT, MIRROR 2 ダイ 2 ミラー ダイ	
2	FA5 – 1642 – 000		1	SPRING, LEAF, 2 REAR ダイ 2 ミラー オサエ バネ (ウシロ)	
3	FA5 – 1643 – 000		1	SPRING, LEAF, 3 REAR ダイ 3 ミラー オサエバネ (ウシロ)	
4	FA5 – 1644 – 000		2	SPRING, LEAF, 2/3 FRONT ダイ 2/3 ミラー オサエバネ (マエ)	
5	FA5 – 1646 – 000		1	PULLEY プーリ	
6	FA5 – 1647 – 000		1	PLATE, ADJUSTING チヨウセイ イタ	
7	FN1 – 4213 – 000		2	MIRROR 2/3 ダイ 2,3 ミラー	
8	FF1 – 9388 – 000		1	MOUNT, PULLEY プーリ ダイ	
9	FC1 – 3569 – 00P		2	BUSHING ジク ウケ	
10	XG9 – 0089 – 000		1	ROLLER ローラ	
11	X31 – 6241 – 080		5	SETSCREW, M4X8 ロツカク アナツキ トメネジ	

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FIGURE 450 BLANK EXPOSURE LAMP ASSEMBLY
ブランク露光部

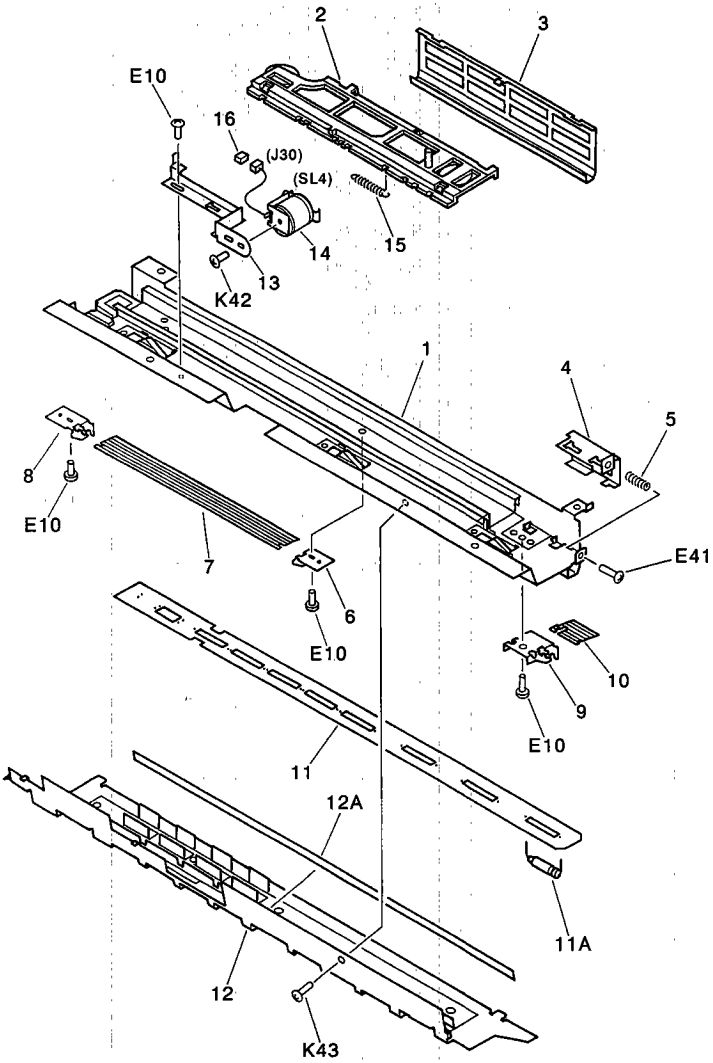

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
450 –	FG2 – 2971 – 01P		1	BLANK EXPOSURE LAMP ASSEMBLY ブランク ロコウ ブ	
1	FF2 – 5589 – 01P		1	MOUNT, BLANK ブランク ダイ	
2	FF2 – 5592 – 00P		1	SLIT UNIT スリット	
3	FC1 – 0684 – 00P		1	SLIT スリット	
4	FC1 – 0686 – 00P		1	ADJUSTING SLIT チヨウセイ スリット	
5	FS2 – 2765 – 000		1	SPRING, COMPRESSION アツシユク バネ	
6	FC1 – 0681 – 00P		1	SUPPORT, REFLECTOR, R ハンシヤ バン ササエ (R)	
7	FC1 – 0659 – 00P		1	REFLECTOR, R ハンシヤ バン (R)	
8	FC1 – 0682 – 00P		1	SUPPORT, REFLECTOR, L ハンシャ バン ササエ (L)	
9	FC1 – 0660 – 00P		1	SUPPORT, REFLECTOR, F ハンシヤ バン ササエ (F)	
10	FC1 – 0658 – 00P		1	REFLECTOR, F ハンシヤ バン (F)	
11	FG2 – 4048 – 00P		1	PRE – CON. EXPOSURE PCB ASSEMBLY マエ ロコウ キバン	
11A	FH7 – 3116 – 000		8	LAMP, 6V200WA ヒユーズ ランプ	
12	FF2 – 5588 – 01P		1	BLANK HOLDER ブランク ホルダ	
12A	FC1 – 0655 – 000		1	ND FILTER フイルタ	
13	FC1 – 0650 – 00P		1	MOUNT, SOLENOID ソレノイド ダイ	
14	FH0 – 0051 – 00P		1	SOLENOID ソレノイド	SL4
15	FS4 – 2030 – 00P		1	SPRING, TENSION ヒツパリ バネ	
16	FH0 – 0054 – 00P		1	CONNECTOR, 2P コネクタ	

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FIGURE 560 TRANSFER CORONA ASSEMBLY
転写帯電器

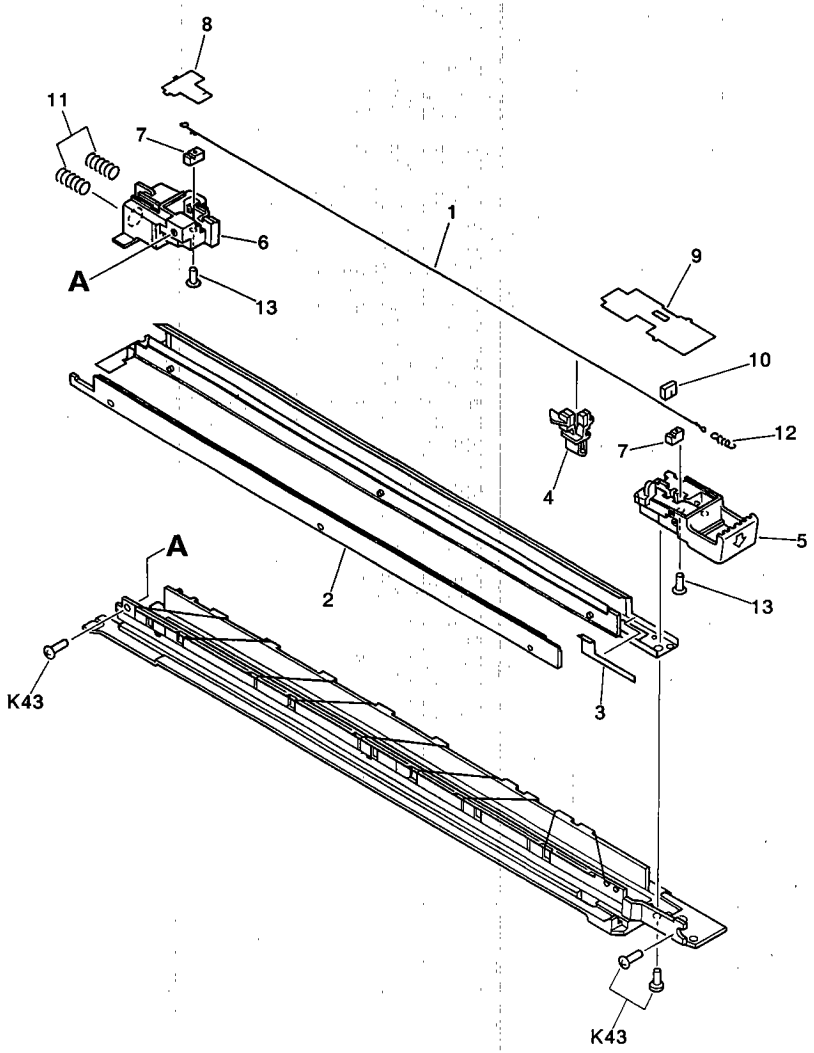

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
560 –	FG2 – 3020 – 00P		1	TRANSFER CORONA ASSEMBLY テンシャ タイデンキ	
1	FY3 – 0040 – 000		AR	WIRE, CORONA, 0.06MM (20M) タイデンセン	
2	FF1 – 9438 – 050		1	PLATE, STATIC CHARGE ELIM'R ジョデン シン バン	
3	FA5 – 1882 – 000		1	PLATE, TRANSFER CORONA, FRONT テンシヤ キセイ バン (マエ)	
4	FF1 – 9440 – 030		1	CLEANING UNIT クリーナ	
5	FF2 – 5578 – 000		1	WIRE TERMINATION, FRONT 2 テンシャ ブロック (マエ 2)	
6	FA5 – 1862 – 000		1	WIRE TERMINATION REAR テンシヤ ブロツク (ウシロ)	
7	FA5 – 1873 – 000		2	GUIDE, CORONA WIRE タカサ チヨウセイ コマ	
8	FA5 – 1874 – 020		1	COVER, WIRE TERMINATION REAR ブロツク フタ (ウシロ)	
9	FA5 – 1875 – 020		1	LOWER, WIRE TERMINATION FRONT ブロツク フタ (マエ)	
10	FA5 – 1878 – 000		1	DAMPER, RUBBER ボウシン ゴム	
11	FS2 – 2781 – 000		2	SPRING, COMPRESSION アツシユク バネ	
12	97 – 5527 – 000		1	SPRING, TENSION タイデンセン ヒツパリ バネ	
13	XA9 – 0159 – 000		2	SCREW, FT, C.S, HEAD, M3X12 FT ネジ	

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FIGURE 640 DEVELOPING ASSEMBLY (BLACK)
現像器（黒）

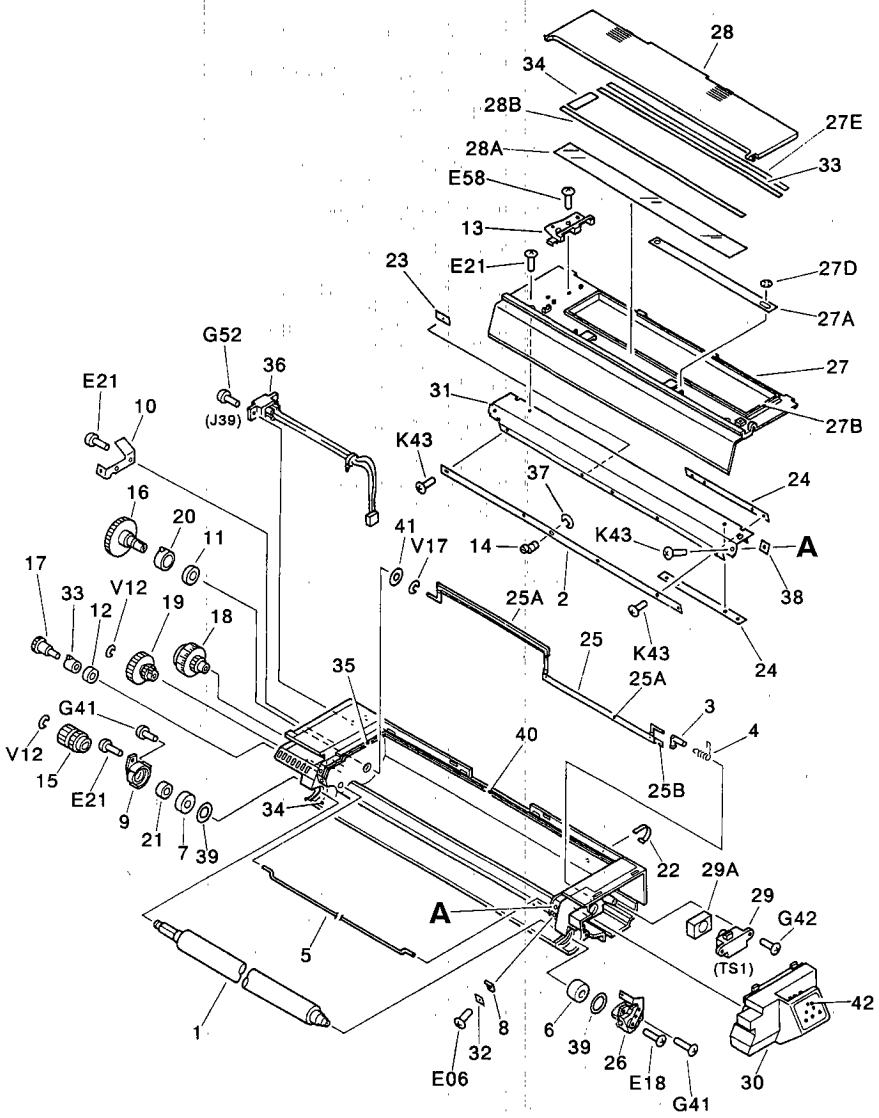

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
640 –	FG1 – 7381 – 130		1	DEVELOPING ASSEMBLY (BLACK) ゲンゾウキ (クロ)	
1	FA5 – 1757 – 030		1	CYLINDER, DEVELOPING ゲンゾウ シリンダ	
2	FA5 – 1758 – 000		1	BLADE ブレード	
3	FA5 – 1763 – 000		1	HOLDER, STIRRING カクハン ボウ フロート	
4	FA5 – 1764 – 000		1	SPRING, TORSION ネジリ バネ	
5	FA5 – 1765 – 000		1	ROD, STIRRING 2 カク ハン ボウ (2)	
6	FA5 – 1766 – 000		1	ROLLER, FRONT, SPACER ツキアテ コロ (マエ)	
7	FA5 – 1767 – 000		1	ROLLER, REAR, SPACER ツキアテ コロ (オク)	
8	FA5 – 1768 – 000		2	SPACER スペーサ	
9	FA5 – 1771 – 000		1	HOLDER, SLEEVE, REAR スリーブ ホルダ (オク)	
10	FA5 – 1773 – 000		1	TERMINAL デンキヨク バン	
11	FA5 – 1779 – 000		1	SEAL 1 ギア シール 1	
12	FA5 – 1780 – 000		1	SEAL 2 ギア シール 2	
13	FA5 – 1787 – 000		1	STOP, CARTRIDGE カートリッジ ロック	
14	FA5 – 1762 – 000		1	BOSS ボス	
15	FS2 – 0870 – 000		1	GEAR, 19T 19T ギア	
16	FS2 – 0871 – 000		1	GEAR, 45T 45T ギア	
17	FS2 – 0872 – 020		1	GEAR, 14T 14T ギア	
18	FS2 – 0873 – 000		1	GEAR, 17T 17T ギア	
19	FS2 – 0874 – 000		1	GEAR, 30T 30T ギア	
20	FS1 – 1594 – 000		1	BUSHING ジク ウケ	
21	XG9 – 0177 – 000		1	BALL BEARING ベアリング	
22	WT2 – 0030 – 000		3	TIE, CABLE ソクセン バンド	
23	FA5 – 1794 – 000		1	SHEET シート	
24	FA5 – 1788 – 000		2	SHEET シート	
25	FF1 – 9406 – 000		1	ROD, STIRRING 1 カク ハン ボウ (1)	
25A	FA5 – 1761 – 000		2	SHEET カク ハン シート	
25B	FA9 – 1778 – 000		1	SHEET シート	
26	FF1 – 9407 – 000		1	HOLDER, SLEEVE FRONT スリーブ ホルダ (マエ)	
27	FF1 – 9408 – 000		1	COVER, DEVELOPING ゲンゾウキ カバー	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
640 – 27A	FA5 – 1777 – 000		1	STRAP, LIFTING トツテ シート	
27B	FA5 – 1785 – 000		1	SEAL, COVER カバー シール	
27C	FA5 – 1789 – 000		1	SHEET シート	
27D	XD2 – 2300 – 402		2	NUT, PUSH プツシユ ナツト	
27E	FA5 – 1793 – 000		1	SEAL 4 シール (4)	
28	FF1 – 9409 – 000		1	LID, DEVELOPING ゲンゾウキ フタ	
28A	FA5 – 1783 – 000		2	SEAL 1 シール (1)	
28B	FA5 – 1784 – 000		1	SEAL 2 シール (2)	
29	FF1 – 9410 – 000		1	SENSOR, TONER トナー センサ	TS1
29A	FA5 – 1778 – 000		1	SEAL, SENSOR センサ シール	
30	FF1 – 9411 – 000		1	HANDLE トッテ	
31	FA5 – 1759 – 000		1	MOUNT, BLADE ブレード ダイ	
32	FA9 – 2411 – 000		2	SHEET シート	
33	FS1 – 1598 – 000		1	BUSHING ジクウケ	
34	FA5 – 1769 – 000		2	SEAL, FOAM 1 タンブ シール (1)	
35	FA5 – 1782 – 000		2	SEAL, SIDE サイド シール	
36	FF9 – 0967 – 000		1	CABLE ASSEMBLY ソクセン	
37	XD2 – 1200 – 242		1	E RING トメワ	
38	FA5 – 1790 – 000		2	SEAL, FOAM 2 タンブ シール (2)	
39	FA4 – 2766 – 000		2	RING, SEAL ポリエチレン リング	
40	FA5 – 1781 – 000		1	SEAL, CONTAINER ヨウキ シール	
41	XD1 – 1109 – 721		1	WASHER ワツシヤ	
42	FS4 – 8108 – 000		1	LABEL, TONER トナー メイハン	

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FIGURE 810 FIXING ASSEMBLY (1/2)
定着器 (1/2)

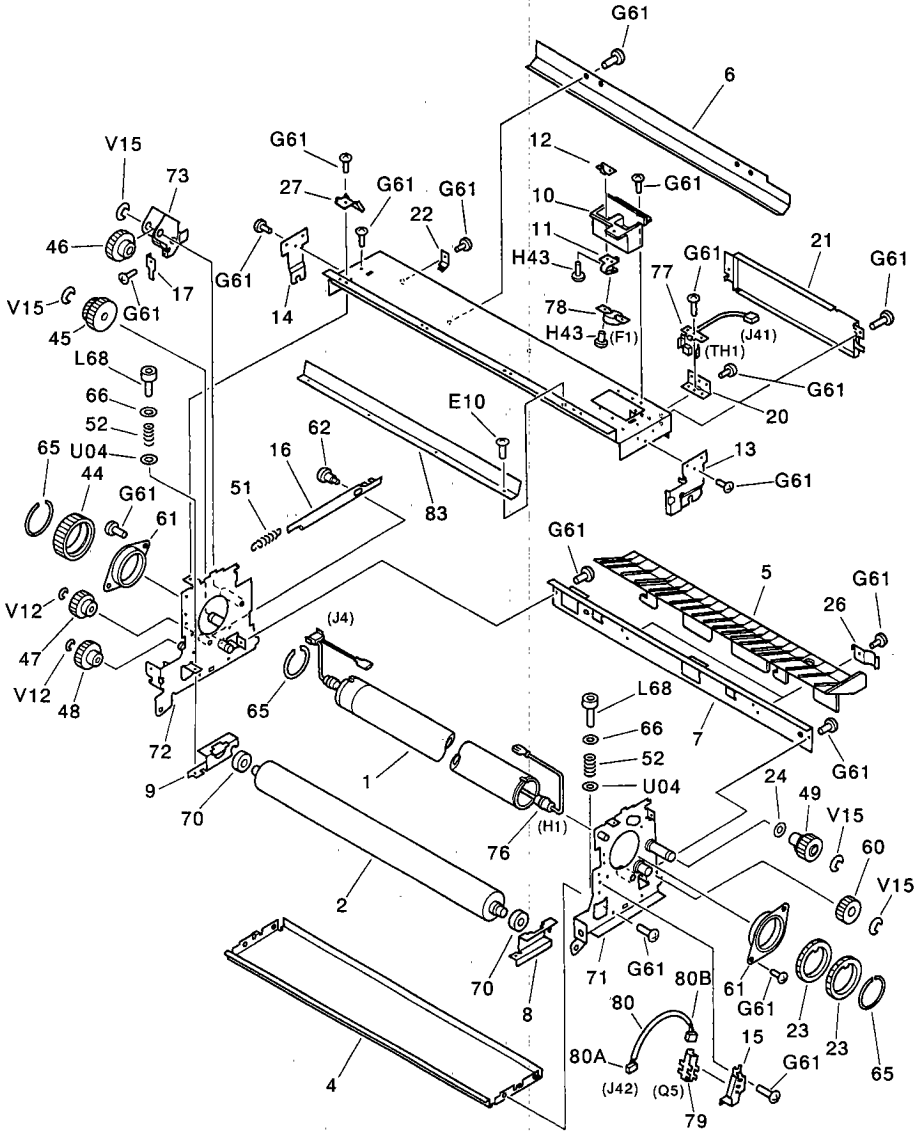

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FIGURE 810 FIXING ASSEMBLY (2/2)
定着器 (2/2)

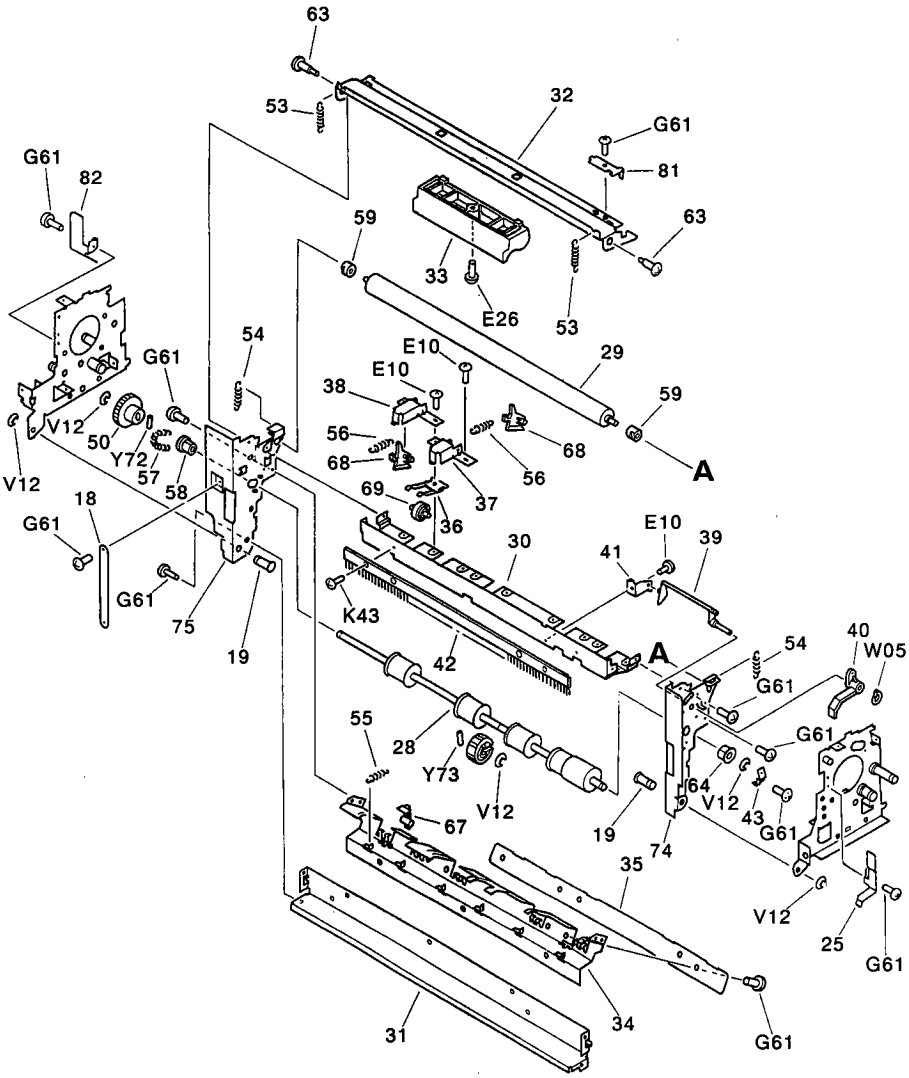

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
810 —	FG1 – 7396 – 260	N	1	FIXING ASSEMBLY, 220V テイチヤク キ	220V
	FG1 – 7397 – 260	N	1	FIXING ASSEMBLY, 240V テイチヤク キ	240V
1	FA5 – 1916 – 050		1	ROLLER, FIXING, UPPER ウエ ローラ	
2	FA6 – 3921 – 000		1	ROLLER, FIXING, LOWER シタ ローラ	
3	FA5 – 1920 – 030		1	CROSSMEMBER, UPPER ウエ ステイ	
4	FA5 – 1921 – 000		1	CROSSMEMBER, LOWER シタ ステイ	
5	FA5 – 1922 – 000		1	GUIDE, PAPER カミ ガイド	
6	FA5 – 1923 – 000		1	PLATE, PAPER GUIDE ウエ カミ ガイド バン	
7	FA5 – 1924 – 000		1	PLATE, MOUNTING, PAPER GUIDE カミ ガイド トリツケ バン	
8	FA5 – 1925 – 000		1	PLATE, ROLLER PRESSURE, FRONT カアツ バン (マエ)	
9	FA5 – 1926 – 000		1	PLATE, ROLLER PRESSURE, REAR カアツ バン (ウシロ)	
10	FA5 – 1927 – 000		1	HOLDER, THERMOSWITCH サーモ スイツチ ホルダ	
11	FA5 – 1928 – 000		2	SPRING, LEAF, THERMOSWITCH サーモ スイツチ デンキヨク バネ	
12	FA5 – 1930 – 000		2	PLATE, ELECTRODE デンキヨク バン	
13	FA5 – 1931 – 000		1	PLATE, HEATER SUPPORT, FRONT ヒータ シジバン (マエ)	
14	FA5 – 1932 – 000		1	PLATE, HEATER SUPPORT, REAR ヒータ シジバン (ウシロ)	
15	FA5 – 1935 – 000		1	MOUNT, PAPER SENSOR カミ ケン センサ トリツケダイ	
16	FA5 – 1936 – 000		1	PLATE クドウ カイジヨ レバー	
17	FA5 – 1938 – 020		1	SPRING, LEAF イタ バネ	
18	FA5 – 1939 – 000		1	STRAP, DOOR バンド	
19	FA5 – 1940 – 000		2	ROD, DOOR SUPPORT ハイシ シジク	
20	FA5 – 1941 – 000		1	PLATE, THERMISTOR MOUNTING サーミスタ トリツケバン	
21	FA5 – 1942 – 000		1	PLATE, SENSOR COVER センサー カバー	
22	FA5 – 1943 – 000		1	ELIMINATOR, STATIC CHARGE テイチヤク ロール ジヨデンブラシ	
23	FA5 – 1944 – 000		2	GEAR, 40T 40T ギア	
24	XD1 – 1108 – 231		1	SHIM ヒョウジュン ワッシャ	
25	FA5 – 1974 – 000		1	GEAR COVER, FRONT ギア カバー (マエ)	
26	FA5 – 1947 – 000		2	SPRING, LEAF ガイド イタバネ	
27	FA5 – 1948 – 000		2	PLATE, HOLDER, CABLE ケーブル オサエ	
28	FA5 – 1951 – 000		1	ROLLER, DELIVERY ハイシ ローラ	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
810 – 29	FA5 – 1952 – 000		1	ROLLER, OIL オイル トフ ローラ	
30	FA6 – 4681 – 030		1	CROSSMEMBER, DELIVERY, UPPER ハイシ ウエ ステイ	
31	FA5 – 1956 – 000		1	CROSSMEMBER, DELIVERY, LOWER ハイシ シタ ステイ	
32	FA5 – 1949 – 000		1	PLATE, LATCH トツテ ステイ	
33	FA5 – 1958 – 000		1	HANDLE, LATCH RELEASE トツテ	
34	FA6 – 4682 – 030		1	PLATE, CLAW MOUNTING, LOWER シタ ブンリツメ トリツケ ダイ	
35	FA5 – 1950 – 000		1	PLATE, HOLDER, CLAW シタ ブンリツメ オサエ	
36	FA6 – 4685 – 000		4	PLATE, HOLDER, ROLLER コロ ジク シバン	
37	FA6 – 4683 – 000		4	PLATE, HOLDER, CLAW ウエ ブンリツメ ホルダ	
38	FA6 – 4684 – 000		1	PLATE, HOLDER, CLAW ウエ ブンリツメ ホルダ	
39	FA5 – 1966 – 000		1	LEVER, PAPER DETECTION ケンチ レバー	
40	FA5 – 1967 – 000		1	LEVER, LIGHT – BLOCKING, SENSOR センサ レバー	
41	FA5 – 1968 – 000		1	PLATE, HOLDER, ROD レバー ジク シバン	
42	FA5 – 1969 – 000		2	ELIMINATOR, STATIC CHAGE ジヨデン ブラシ	
43	FA5 – 1970 – 000		1	SPRING, LEAF アース イタバネ	
44	FS2 – 0888 – 000		1	GEAR, 40T 40T ギア	
45	FS2 – 0891 – 020		1	GEAR, 30/20T 30/20T ギア	
46	FS2 – 0890 – 020		1	GEAR, 29T 29T ギア	
47	FS2 – 0892 – 000		1	GEAR, 18T 18T ギア	
48	FS2 – 0894 – 000		1	GEAR, 23T 23T ギア	
49	FS2 – 0893 – 000		1	GEAR, 24T 24T ギア	
50	FS2 – 0895 – 000		1	GEAR, 26T 26T ギア	
51	FS2 – 2774 – 000		1	SPRING, TENSION ヒツパリ バネ	
52	FS2 – 2775 – 000		2	SPRING, COMPRESSION アツシユク バネ	
53	FS2 – 2776 – 000		2	SPRING, TENSION ヒツパリ バネ	
54	FS2 – 2777 – 000		2	SPRING, TENSION ヒツパリ バネ	
55	FS2 – 2778 – 000		5	SPRING, TENSION ヒツパリ バネ	
56	FS3 – 2780 – 000		5	SPRING, TENSION ヒツパリ バネ	
57	FS2 – 2161 – 000		1	SPRING, TENSION ヒツパリ バネ	
58	FS1 – 1596 – 000		1	BUSHING ジク ウケ	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
810 – 59	FS1 – 1597 – 000		2	BUSHING ジク ウケ	
60	FS1 – 0884 – 000		1	GEAR, 22T 22T ギア	
61	FS1 – 1240 – 000		2	BUSHING ブッシング	
62	FS1 – 9120 – 000		1	SCREW, STEPPED, M3 ダンピス	
63	FS1 – 9005 – 000		2	SCREW, STEPPED, M4 ダンピス	
64	FS1 – 1205 – 000		4	BUSHING ブッシング	
65	FA9 – 1934 – 000		3	RETAINING RING トメ リング	
66	FA2 – 9078 – 000		4	SPRING バネ ザ	
67	FA2 – 9037 – 000		5	CLAW, SEPARATION, LOWER ブンリ ツメ (シタ)	
68	FB1 – 0301 – 000		5	SEPARATION CLAW, UPPER ブンリ ツメ (ウエ)	
69	FB1 – 0303 – 000		4	ROLLER, DELIVERY, UPPER ハイシ コロ	
70	XG9 – 0172 – 000		2	BEARING, BALL ボール ベアリング	
71	FF1 – 9446 – 030	N	1	PLATE, FRONT, FIXING ASSENBLY マエ ソクバン	
72	FF1 – 9447 – 020	N	1	PLATE, REAR, FIXING ASSEMBLY ウシロ ソクバン	
73	FF1 – 9448 – 020		1	GEAR UNIT カイテン バン	
74	FF1 – 9449 – 000	N	1	PLATE, FRONT, DELIVERY DOOR ハイシ マエ ソクバン	
75	FF1 – 9450 – 000	N	1	PLATE, REAR, DELIVERY DOOR ハイシ ウシロ ソクバン	
76	FH7 – 4239 – 000		1	HEATER, 220V 900W ヒータ	220V H1
	FH7 – 4240 – 000		1	HEATER, 240V 900W ヒータ	240V H1
77	FH7 – 7127 – 000		1	THERMISTOR サーミスタ	TH1
78	FH7 – 7083 – 000		1	THERMOSWITCH サーモ スイツチ	F1
79	FH7 – 7087 – 020		1	PHOTO INTERRUPTER フオト インタラプタ	Q5
80	FF9 – 0972 – 000		1	CABLE ASSEMBLY ハイシ センサ タバセン	
80A	VS1 – 0066 – 003		1	CONNECTOR, 3P, FEMALE コネクタ (メス)	J26
80B	VS1 – 0440 – 003		1	CONNECTOR, 3P, FEMALE コネクタ (メス)	J27
81	FA5 – 1971 – 000		1	PLATE, SUPPORT オサエ イタ	
82	FA5 – 1973 – 000		1	GEAR COVER, REAR ギア カバー (ウシロ)	
83	FC1 – 6832 – 000		1	PLATE, BLOW GUIDE ソウフウ ガイド	

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FIGURE 914 DC POWER SUPPLY PCB ASS' Y (SORTER)
DC 電源 (ソータ)

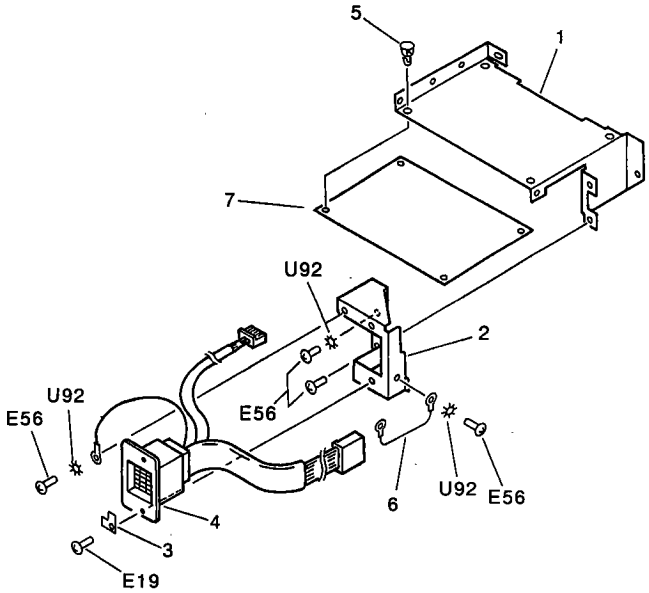

FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
914 –	NPN		RF	DC POWER SUPPLY ASS'Y (SORTER) DC デンゲン (ソータ)	
1	FA6 – 8611 – 000		1	PLATE, PCB MOUNTING キバン トリツケ ダイ	
2	FA6 – 8612 – 000		1	MOUNT, CONNECTOR コネクタ ダイ	
3	FA7 – 0242 – 000		1	PLATE, GROUNDING アース バン	
4	FG2 – 2154 – 000		1	CABLE ソクセン	
5	VT2 – 0023 – 006		4	SUPPORT, SPACER サポート スペーサ	
6	FH2 – 5703 – 000		1	CABLE, GROUNDING アース セン	
7	FH3 – 2127 – 000		1	DC POWER SUPPLY PCB DC デンゲン キバン	

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FIGURE 915 DC POWER SUPPLY PCB ASS' Y (DF)
DC 電源 (DF)

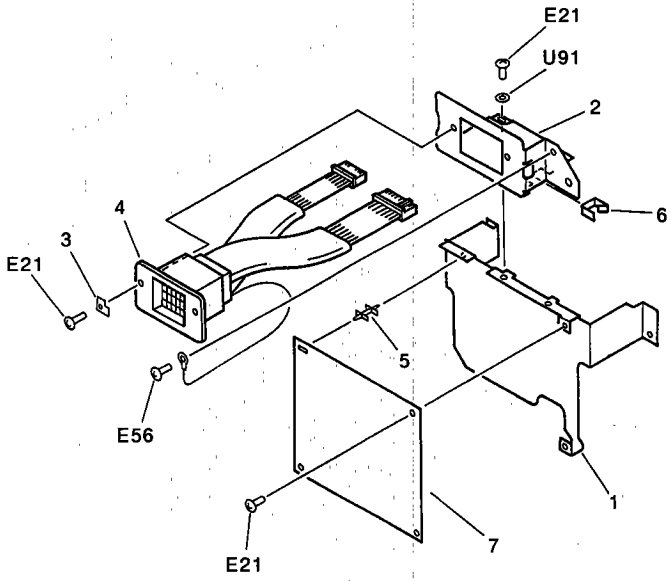

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
915 –	NPN		RF	DC POWER SUPPLY ASS'Y (DF) DC デンゲン (DF)	
1	FA5 – 4614 – 000		1	MOUNT, DC POWER SUPPLY PCB DF デンゲン ダイ	
2	FA6 – 7670 – 000		1	MOUNT, DF CONNECTOR コネクタ ダイ	
3	FA7 – 0242 – 000		1	PLATE, GROUNDING アース バン	
4	FG2 – 1970 – 000		1	DF CONNECTOR UNIT DF コネクタ ソクセン	
5	VT2 – 0001 – 004		1	SUPPORT, PCB ロツキング サポート	
6	WT2 – 0296 – 000		1	CLIP, CABLE エツジ サドル	
7	FH3 – 2235 – 000		1	DC POWER SUPPLY PCB DC デンゲン キバン	

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FIGURE 930 DC CONTROLLER PCB ASSEMBLY (1/2)
DC コントローラ回路基板 (1/2)

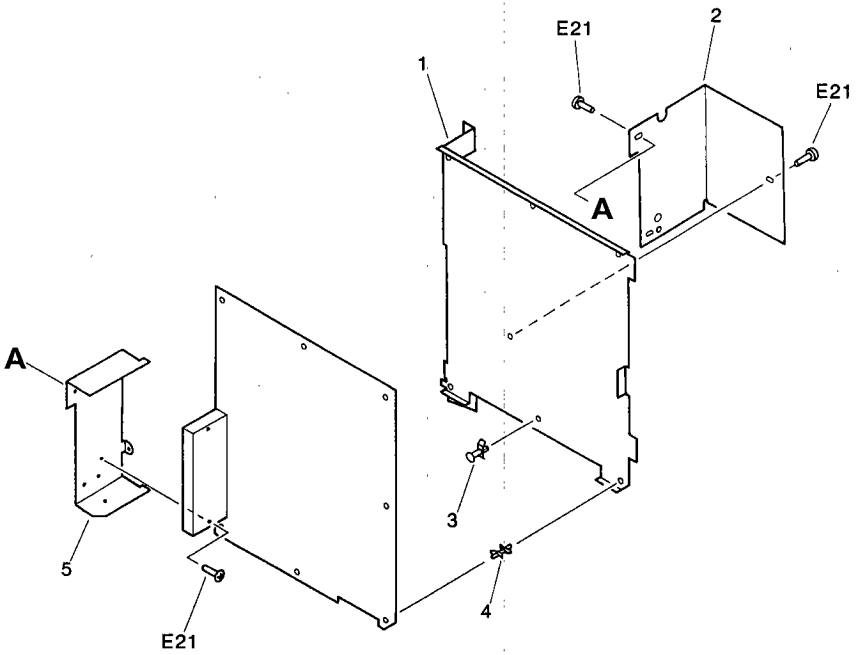

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FIGURE 930 DC CONTROLLER PCB ASSEMBLY (2/2)
DC コントローラ回路基板 (2/2)

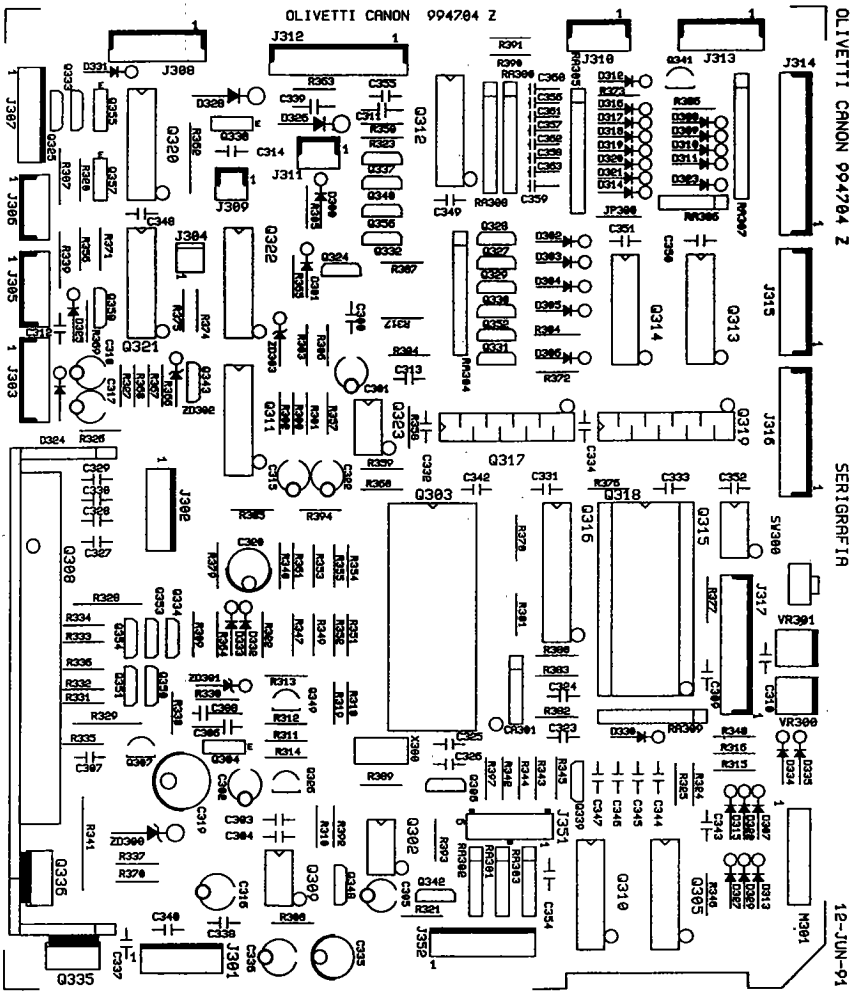

FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
930 –	FG2 – 3008 – 01P		1	DC CONTROLLER PCB ASSEMBLY DC コントローラ カイロキバン	
1	FC1 – 0931 – 00P		1	PLATE, MOUNTING トリツケ バン	
2	FC1 – 0932 – 00P		1	HEATSINK ホウネツ バン	
3	VT2 – 0002 – 006		1	SUPPORT, SPACER サポート スペーサ	
4	VT2 – 0001 – 006		6	SUPPORT, PCB ロツキング サポート	
5	FA0 – 0151 – 00P		1	HEATSINK ホウネツ バン	

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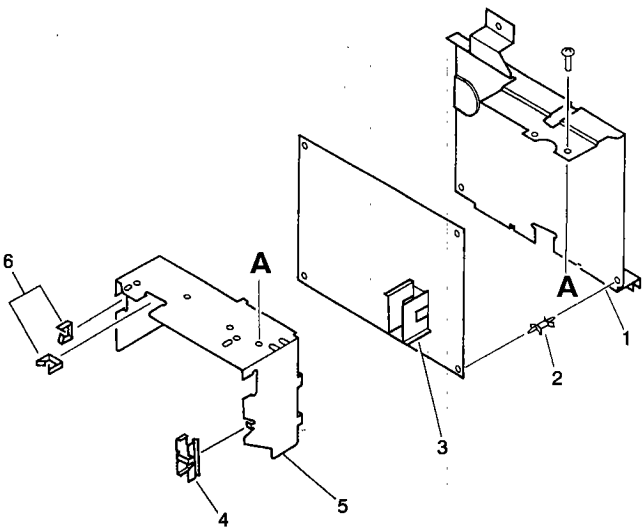
FIGURE 960 DC POWER SUPPLY PCB ASSEMBLY
DC 電源回路基板



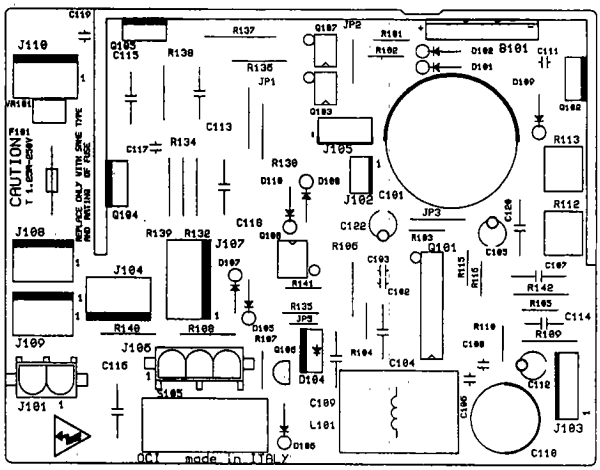


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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
960 –	FG2 – 4747 – 01P		1	DC POWER SUPPLY PCB ASSEMBLY DC デンゲン カイロ キバン	
1	FA0 – 0153 – 00P		1	MOUNT シバン	
2	VT2 – 0001 – 004		5	SUPPORT, PCB ロツキング サポート	
3	FC1 – 0936 – 00P		1	HEATSINK, 2 ホウネツ バン (2)	
4	FC1 – 0937 – 00P		1	PLATE, 3 オサエ イタ (3)	
5	FA0 – 0152 – 00P		1	HEATSINK ホウネツ バン	
6	WT2 – 0241 – 000		3	CLIP, EDGE エッジ サドル	

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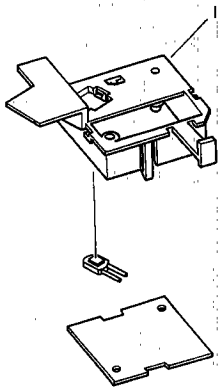
FIGURE 970 AE SENSOR PCB ASSEMBLY
AE センサ部



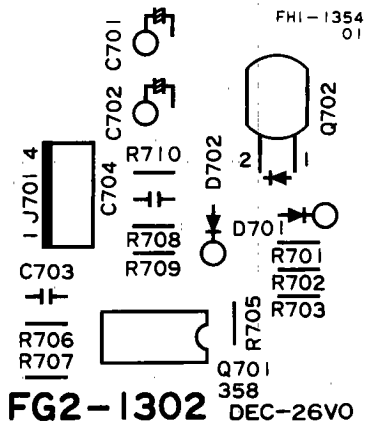


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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
970 –	FG2 – 1302 – 000		1	AE SENSOR ASSEMBLY AE センサ ブ	
1	FA6 – 5235 – 000		1	HOUSING, AE SENSOR AE ホルダ	
C701	VC1 – 2351 – 106		1	CAPACITOR, 10UF, 35V コンデンサ	
C702	VC1 – 2351 – 106		1	CAPACITOR, 10UF, 35V コンデンサ	
C703	VC9 – 1425 – 000		1	CAPACITOR, 0.1UF, 50V コンデンサ	
C704	VC9 – 1425 – 000		1	CAPACITOR, 0.1UF, 50V コンデンサ	
D701	WA1 – 0887 – 000		1	DIODE, 1SS270A ダイオード	
D702	WA1 – 0887 – 000		1	DIODE, 1SS270A ダイオード	
J701	WS3 – 0586 – 000		1	PIN ASSEMBLY, 4P ピン アセンブリ	
Q701	WA4 – 0367 – 000		1	IC, UPC358 IC	
Q702	WG3 – 0055 – 000		1	PHOTODIODE, BS520 フオト ダイオード	
R701	VR5 – 6371 – 004		1	RESISTOR, 1MOHM 1/8W テイコウ	
R702	VR5 – 6375 – 491		1	RESISTOR, 5.49KOHM, 1/4W テイコウ	
R703	VR5 – 6372 – 702		1	RESISTOR, 27KOHM 1/8W テイコウ	

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FIGURE 980 HVT ASSEMBLY (1/2)
HVT ユニット (1/2)

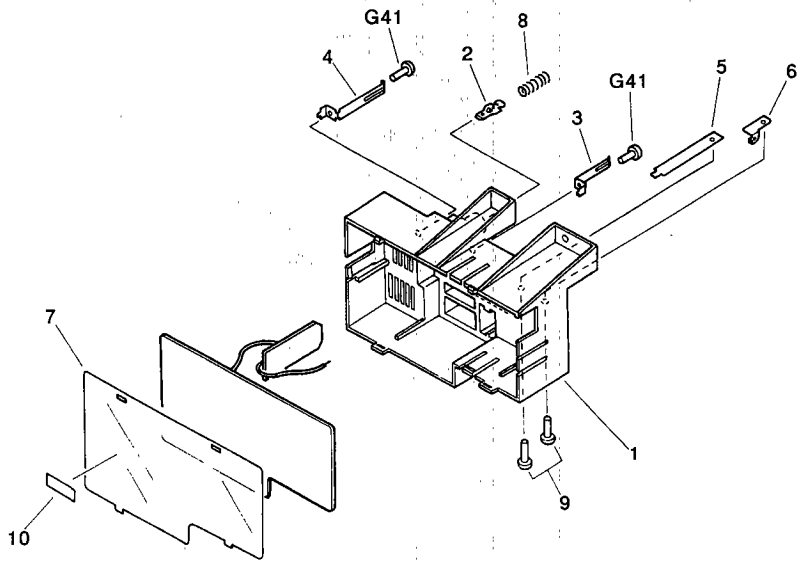

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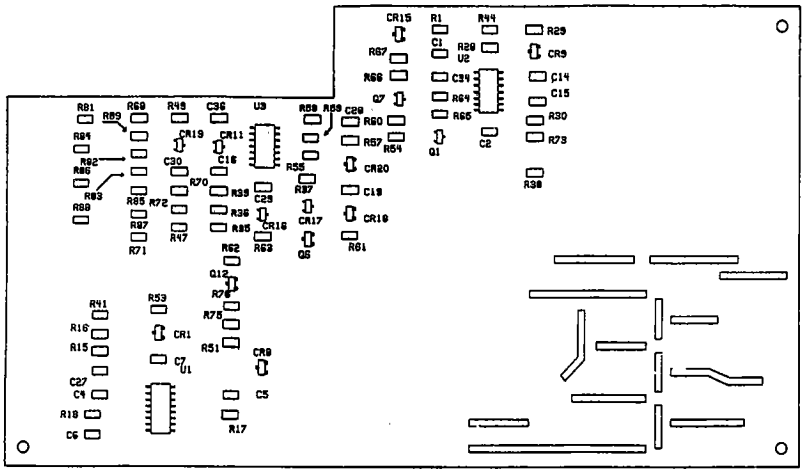
FIGURE 980 HVT ASSEMBLY (2/2)
HVT ユニット (2/2)



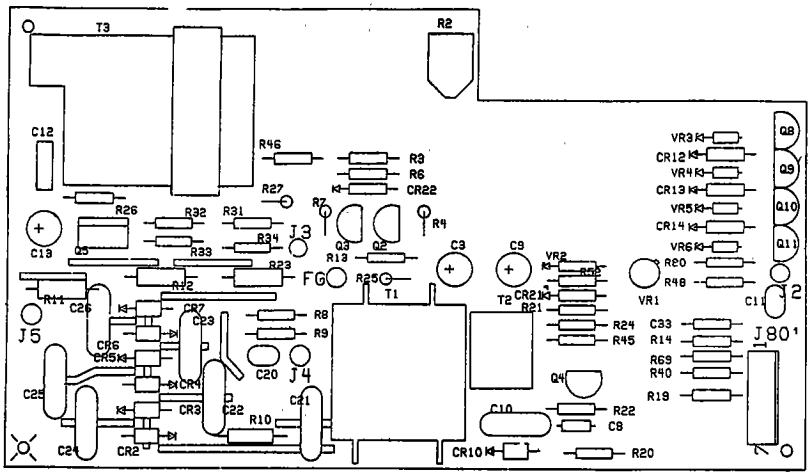


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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
980 –	FG1 – 7414 – 110		1	HV TRANSFORMER PCB ASSEMBLY コウアツ トランス	
1	FA5 – 2031 – 030		1	COVER, HV TRANSFORMER HVT カバー	
2	FA5 – 2032 – 000		1	PLATE, BEARING, PRIMARY イチジ デンキヨク バン	
3	FA5 – 2033 – 000		1	PLATE, BEARING, GRID グリッド デンキヨク バン	
4	FA5 – 2034 – 000		1	PLATE, BEARING, SHIELD シールド デンキヨク バン	
5	FA5 – 2035 – 000		1	PLATE, STATIC CHARGE ELIM'R ジョデンシン デンキヨク バン	
6	FA5 – 2036 – 000		1	PLATE, BEARING, TRANSFER テンシヤ デンキヨク バン	
7	FA5 – 2037 – 000		1	SHEET INSULATING ゼツエン シート	
8	FS2 – 2789 – 000		1	SPRING, COMPRESSION アツシユク バネ	
9	XB1 – 1301 – 203		2	SCREW, MACH., PAN HEAD M3X12 ナベ コ ネジ	
10	FA1 – 9972 – 000		1	LABEL, "WARNING, HIGH VOLTAGE" コウアツ チユウイ メイハン	
	FS2 – 8612 – 000		1	LABEL, CAUTION コウアツ チユウイ ラベル	
	FS2 – 8613 – 000		1	LABEL, CAUTION コウアツ チユウイ ラベル	
C 1	VC6 – 3760 – 336		1	CAPACITOR, 33UF, 50V コンデンサ	
C 2	VC5 – 8120 – 471		1	CAPACITOR, 470PF, 1KV コンデンサ	
C 3	VC9 – 1470 – 000		1	CAPACITOR, 0.01UF, 1KV コンデンサ	
C 4	VC9 – 1470 – 000		1	CAPACITOR, 0.01UF, 1KV コンデンサ	
C 5	VC9 – 1470 – 000		1	CAPACITOR, 0.01UF, 1KV コンデンサ	
C 6	VC9 – 1470 – 000		1	CAPACITOR, 0.01UF, 1KV コンデンサ	
C 7	VC9 – 1470 – 000		1	CAPACITOR, 0.01UF, 1KV コンデンサ	
C 8	VC9 – 1470 – 000		1	CAPACITOR, 0.01UF, 1KV コンデンサ	
C 9	WA8 – 0166 – 000		1	VARISTOR, 3300PF バリスタ	
C 10	VC6 – 3760 – 476		1	CAPACITOR, 47UF, 50V コンデンサ	
C 11	VC6 – 0770 – 472		1	CERAMIC CAPACITOR, 4700PF, 1KV コンデンサ	
C 12	VC6 – 0770 – 472		1	CERAMIC CAPACITOR, 4700PF, 1KV コンデンサ	
C 13	VC4 – 4504 – 102		1	CAPACITOR, 0.001UF, 50V コンデンサ	
C 14	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
C 15	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
C 16	VC6 – 1000 – 333		1	CAPACITOR, 0.033UF 200V コンデンサ	
C 17	VC5 – 5760 – 476		1	CAPACITOR, 47UF 35V コンデンサ	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
980 – C 18	VC5 – 4530 – 473		1	CAPACITOR, 0.047U, 50V コンデンサ	
C 19	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
C 20	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
C 21	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
C 22	VC4 – 4504 – 102		1	CAPACITOR, 0.001UF, 50V コンデンサ	
C 23	VC4 – 4504 – 102		1	CAPACITOR, 0.001UF, 50V コンデンサ	
C 24	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
C 25	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
C 26	VC5 – 4530 – 103		1	CAPACITOR, 0.01UF 50V コンデンサ	
C 27	VC5 – 7010 – 104		1	CAPACITOR, 0.1UF, 25V コンデンサ	
D 1	WA1 – 0396 – 000		1	DIODE, SHV – 03 ダイオード	
D 2	WA1 – 0396 – 000		1	DIODE, SHV – 03 ダイオード	
D 3	WA1 – 0396 – 000		1	DIODE, SHV – 03 ダイオード	
D 4	WA1 – 0396 – 000		1	DIODE, SHV – 03 ダイオード	
D 5	WA1 – 0396 – 000		1	DIODE, SHV – 03 ダイオード	
D 6	WA1 – 0396 – 000		1	DIODE, SHV – 03 ダイオード	
D 7	WA1 – 0178 – 000		1	DIODE, 1SS81 ダイオード	
D 8	WA1 – 0396 – 000		1	DIODE, SHV – 03 ダイオード	
D 9	X65 – 5032 – 000		1	DIODE, 1S1588 ダイオード	
D 10	WA1 – 0178 – 000		1	DIODE, 1SS81 ダイオード	
D 11	WA1 – 0306 – 000		1	DIODE, EM01Z ダイオード	
D 12	X65 – 5032 – 000		1	DIODE, 1S1588 ダイオード	
D 13	X65 – 5032 – 000		1	DIODE, 1S1588 ダイオード	
FG	FF2 – 0001 – 000		1	CABLE, GND GND ケーブル	
J 2	FF2 – 0006 – 000		1	CABLE, GRID グリッド ケーブル	
J 3	FF2 – 0007 – 000		1	CABLE, SHIELD シールド ケーブル	
J 4	FF2 – 0003 – 000		1	CABLE, DEVELOPING UNIT BIAS ゲンゾウ バイアス ケーブル	
J 5	FF2 – 0002 – 000		1	CABLE, STATIC CHAGE ELIMINATOR ジョデンシン ケーブル	
J801	FF1 – 9451 – 020		1	CABLE ニュウリョク ケーブル	
P	FF2 – 0005 – 000		1	CABLE, PRIMARY イチジ H.V ケーブル	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
980 – Q 1	FH4 – 5440 – 000		1	HIC, PLAN23 コウアツ セイギヨ HIC	
Q 2	WA2 – 0831 – 000		1	TRANSISTOR, 2SC3834 トランジスタ	
Q 3	WA4 – 0225 – 000		1	IC, NJM4558 IC	
Q 4	FH4 – 5087 – 000		1	IC IC	
Q 5	WA2 – 0957 – 000		1	TRANSISTOR, 2SC3675 トランジスタ	
Q 6	WA2 – 0124 – 000		1	TRANSISTOR, 2SC1815Y トランジスタ	
Q 7	WA2 – 0135 – 000		1	TRANSISTOR, 2SA1015Y トランジスタ	
R 1	VR1 – 1141 – 479		1	RESISTOR, 4.7 OHM, 1/4W テイコウ	
R 2	VR1 – 1141 – 104		1	RESISTOR, 100KOHM, 1/4W テイコウ	
R 3	VR1 – 1141 – 515		1	RESISTOR, 5.1MOHM, 1/4W テイコウ	
R 4	VR1 – 1141 – 103		1	RESISTOR, 10KOHM, 1/4W テイコウ	
R 5	FH4 – 9053 – 000		1	RESISTOR ARRAY, 100M/150KOHM テイコウ アレイ	
R 7	VR1 – 1141 – 470		1	RESISTOR, 47 OHM, 1/4W テイコウ	
R 8	VR5 – 6870 – 470		1	RESISTOR, 47 OHM, 1W テイコウ	
R 9	VR1 – 1141 – 471		1	RESISTOR, 470 OHM, 1/4W テイコウ	
R 10	VR5 – 2511 – 004		1	RESISTOR, 1MOHM, 1/4W テイコウ	
R 11	VR5 – 2511 – 004		1	RESISTOR, 1MOHM, 1/4W テイコウ	
R 12	VR1 – 1141 – 914		1	RESISTOR, 910KOHM 1/4W テイコウ	
R 13	VR1 – 1141 – 392		1	RESISTOR, 3.9KOHM, 1/4W テイコウ	
R 14	VR1 – 1141 – 471		1	RESISTOR, 470 OHM, 1/4W テイコウ	
R 15	VR1 – 1141 – 220		1	RESISTOR, 22 OHM, 1/4W テイコウ	
R 16	VR7 – 1710 – 229		1	RESISTOR, 2.2 OHM, 1W テイコウ	
R 17	VR5 – 2650 – 334		1	RESISTOR, 330KOHM 1/2W テイコウ	
R 18	VR5 – 2650 – 103		1	RESISTOR, 10KOHM 1/2W テイコウ	
R 19	VR1 – 1141 – 514		1	RESISTOR, 510KOHM 1/4W テイコウ	
R 20	VR1 – 1141 – 514		1	RESISTOR, 510KOHM 1/4W テイコウ	
R 21	VR1 – 1141 – 514		1	RESISTOR, 510KOHM 1/4W テイコウ	
R 22	VR1 – 1141 – 514		1	RESISTOR, 510KOHM 1/4W テイコウ	
R 23	VR5 – 2513 – 324		1	RESISTOR, 3.32MOHM 1/4W テイコウ	
R 24	VR5 – 2513 – 324		1	RESISTOR, 3.32MOHM 1/4W テイコウ	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
980 – R 25	VR5 – 2513 – 324		1	RESISTOR, 3.32MOHM 1/4W テイコウ	
R 26	VR5 – 2512 – 153		1	RESISTOR, 215KOHM 1/4W テイコウ	
R 27	VR5 – 2517 – 322		1	RESISTOR, 73.2KOHM 1/4W テイコウ	
R 28	VR1 – 1141 – 103		1	RESISTOR, 10KOHM, 1/4W テイコウ	
R 29	VR5 – 2512 – 052		1	RESISTOR, 20.5KOHM 1/4W テイコウ	
R 30	VR5 – 2512 – 612		1	RESISTOR, 26.1KOHM 1/4W テイコウ	
R 31	VR5 – 2513 – 013		1	RESISTOR, 301KOHM 1/4W テイコウ	
R 32	VR1 – 1141 – 472		1	RESISTOR, 4.7KOHM, 1/4W テイコウ	
R 33	VR1 – 1141 – 203		1	RESISTOR, 20KOHM, 1/4W テイコウ	
R 34	VR1 – 1141 – 203		1	RESISTOR, 20KOHM, 1/4W テイコウ	
R 35	VR1 – 1141 – 103		1	RESISTOR, 10KOHM, 1/4W テイコウ	
R 36	VR1 – 1141 – 104		1	RESISTOR, 100KOHM, 1/4W テイコウ	
R 37	VR1 – 1141 – 104		1	RESISTOR, 100KOHM, 1/4W テイコウ	
R 38	VR1 – 1141 – 104		1	RESISTOR, 100KOHM, 1/4W テイコウ	
R 39	VR1 – 1141 – 203		1	RESISTOR, 20KOHM, 1/4W テイコウ	
R 40	VR1 – 1141 – 470		1	RESISTOR, 47 OHM, 1/4W テイコウ	
R 41	VR1 – 1141 – 472		1	RESISTOR, 4.7KOHM, 1/4W テイコウ	
R 42	VR1 – 1141 – 202		1	RESISTOR, 2KOHM, 1/4W テイコウ	
R 43	VR1 – 1141 – 752		1	RESISTOR, 7.5KOHM, 1/4W テイコウ	
R 44	VR1 – 1141 – 103		1	RESISTOR, 10KOHM, 1/4W テイコウ	
R 45	VR1 – 1141 – 103		1	RESISTOR, 10KOHM, 1/4W テイコウ	
R 46	VR1 – 1141 – 202		1	RESISTOR, 2KOHM, 1/4W テイコウ	
R 47	VR5 – 2519 – 763		1	RESISTOR, 976KOHM 1/4W テイコウ	
T 1	FH3 – 0629 – 000		1	TRANSFORMER トランス	
T 2	FH3 – 0239 – 000		1	TRANSFORMER トランス	
T 3	FH3 – 0512 – 000		1	TRANSFORMER トランス	
T 4	FH3 – 8017 – 000		1	TRANSFORMER トランス	
VR 1	VR5 – 6840 – 204		1	RESISTOR, VARIABLE, 200KOHM カヘン テイコウ	
W 1	FF2 – 0004 – 000		1	CABLE, HV H.V ケーブル	
ZD 1	WA1 – 0074 – 000		1	DIODE, ZENER, HZ24 – 2 ツエナー ダイオード	

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FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	SERIAL NUMBER / REMARKS
980 – ZD 2	WA1 – 0074 – 000		1	DIODE, ZENER, HZ24 – 2 ツエナー ダイオード	
ZD 3	WA1 – 0209 – 000		1	DIODE, ZENER, HZ5C – 1 ツエナー ダイオード	

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C LIST OF STANDARD FASTENERS
機械標準部品一覧表

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B. Pan head machine screws C-3
E. Binding head machine screws C-4
F. Flat head machine screws C-4
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L. Hex socket setscrews and socket head cap screws C-6
Ⅱ. NUTS C-7
M. Hexagon nuts C-7
Ⅲ. WASHERS AND SHIM WASHERS C-8
N. S &T. Shim washers C-8
U. Plain Washers, spring washers & toothed lock washers C-10
Ⅳ. RETAINING RINGS C-11
V. E rings C-11
W. Grip rings C-11
X. C rings C-12
Ⅴ. PINS C-13
Y. Spring and dowel pins C-13
Ⅵ. SPACERS C-14
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Ⅰ. ネジ C-2
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B. ナベ小ネジ C-3
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F. サラ小ネジ C-4
G. タッピンネジ C-5
H. バネ座金付き十字ナベ小ネジ C-5
K. TP小ネジ C-6
L. 六角穴付き止めネジおよび六角穴付きボルト C-6
Ⅱ. ナット C-7
M. 六角ナット C-7
Ⅲ. ワッシャ C-8
N. S & T. 標準ワッシャ C-8
U. 平座金、バネ座金および歯付き座金 C-10
Ⅳ. 止め輪 C-11
V. E形止め輪 C-11
W. グリップ止め輪 C-11
X. C形止め輪 C-12
Ⅴ. ピン C-13
Y. スプリングピンおよび平行ピン C-13
Ⅵ. スペーサ C-14
Z. スペーサ C-14

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I. SCREWS
ネジ

How to read Part Numbers
部品番号の見方

Screws (except socket head cap screws)
ネジ（六角穴付ボルトを除く）

XB1-2400-609

- Classification symbol / 類別番号 ..... Binding head machine screw / バインドネジ
- Nominal diameter (d) / 呼び径（d） M4.0
- Length (ℓ) / 長さ（ℓ） 6.0mm
- Material and surface treatment / 材料および表面処理 ..... Steel (black zinc plated) See table 1. / 鋼材（黒色亜鉛メッキ）表1参照

Socket head cap screws
六角穴付ボルト

XB7-1080-409

- Classification symbol / 類別番号 ..... Socket head cap screw / 六角穴付きボルト
- Nominal diameter (d) / 呼び径（d） M8
- Length (ℓ) / 長さ（ℓ） 40mm
- Material and surface treatment / 材料および表面処理 ..... Steel (black zinc plated) See table 1. / 鋼材（黒色亜鉛メッキ）表1参照

Material and surface treatment

No.	Material	Surface treatment	Color
1	Stainless	Blackened	Black
2		Without surface treatment	White
3	Brass	Nickel plated	White
4		Black nickel plated	Black
5	Steel	Zinc plated	Yellow
6		Nickel and chrome plated	White
7		Nickel plated	White
8		Phosphated	Black
9		Black zinc plated	Black

Table 1

材料および表面処理

番号	材質	表面処理	色
1	ステンレス	黒着色	黒
2		なし	白
3	黄銅	ニッケルメッキ	白
4		黒色ニッケルメッキ	黒
5	鋼	亜鉛メッキ	黄
6		ニッケルクロムメッキ	白
7		ニッケルメッキ	白
8		鉄鋼燐酸塩被膜	黒
9		黒色亜鉛メッキ	黒

表 1

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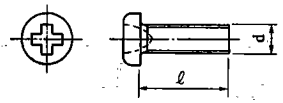
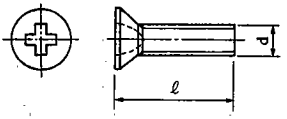
A. MACHINE SCREWS (FOR PRECISION USE)
精密機器用小ネジ

Pan head machine screws
ナベ小ネジ



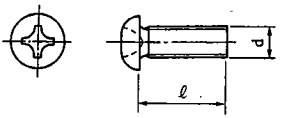
Key No.	Part Number
A22	XA1 - 1200 - 307
A26	XA1 - 1200 - 409
A28	XA1 - 1200 - 509
A30	XA1 - 1200 - 607
A33	XA1 - 1200 - 809
A45	XA1 - 1260 - 309
A46	XA1 - 1260 - 409
A47	XA1 - 1261 - 609
A61	XA1 - 6200 - 306

Flat head machine screws
サラ小ネジ



Key No.	Part Number
A82	XA1 - 3200 - 407
A85	XA1 - 3300 - 609

B. PAN HEAD MACHINE SCREWS
ナベ小ネジ



Key No.	Part Number
B20	XB1 - 1200 - 609
B21	XB1 - 1200 - 809
B22	XB1 - 1300 - 407
B23	XB1 - 1300 - 505
*B24	XB1 - 1300 - 409
B25	XB1 - 1300 - 509
B27	XB1 - 1300 - 606
B29	XB1 - 1300 - 609
B32	XB1 - 1300 - 807
B33	XB1 - 1300 - 809
B34	XB1 - 1301 - 007
B36	XB1 - 1301 - 009
B39	XB1 - 1301 - 209
B40	XB1 - 1301 - 603
B42	XB1 - 1301 - 609
B43	XB1 - 1302 - 009
B44	XB1 - 1302 - 507

Key No.	Part Number
B45	XB1 - 1302 - 007
B51	XB1 - 1400 - 602
B53	XB1 - 1400 - 604
B54	XB1 - 1400 - 609
B56	XB1 - 1400 - 807
B57	XB1 - 1400 - 809
B58	XB1 - 1401 - 009
B60	XB1 - 1401 - 207
B61	XB1 - 1401 - 609
B63	XB1 - 1402 - 503
B64	XB1 - 1403 - 009
B82	XB1 - 1501 - 209

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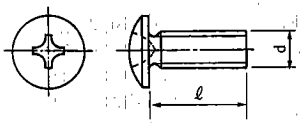
E. BINDING HEAD MACHINE SCREWS
バインド小ネジ

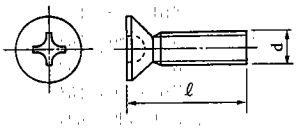


Key No.	Part Number
E01	XB1 - 2200 - 403
E02	XB1 - 2200 - 809
E03	XB1 - 2200 - 407
E04	XB1 - 2200 - 409
E05	XB1 - 2201 - 009
E06	XB1 - 2300 - 403
E07	XB1 - 2300 - 404
E08	XB1 - 2300 - 406
E09	XB1 - 2300 - 407
E10	XB1 - 2300 - 409
E11	XB1 - 2300 - 502
E12	XB1 - 2300 - 503
E13	XB1 - 2300 - 504
E14	XB1 - 2300 - 506
E15	XB1 - 2300 - 509
E16	XB1 - 2300 - 601
E17	XB1 - 2300 - 604
E18	XB1 - 2300 - 603
E19	XB1 - 2300 - 606
E20	XB1 - 2300 - 607
E21	XB1 - 2300 - 609
E22	XB1 - 2300 - 801
E23	XB1 - 2300 - 804
E24	XB1 - 2300 - 307
E25	XB1 - 2300 - 807
E26	XB1 - 2300 - 809
E27	XB1 - 2201 - 209
E28	XB1 - 2301 - 007
E29	XB1 - 2301 - 009
E30	XB1 - 2301 - 202
E31	XB1 - 2301 - 204
E32	XB1 - 2301 - 209
E33	XB1 - 2301 - 603
E34	XB1 - 2301 - 604
E35	XB1 - 2301 - 409
E36	XB1 - 2301 - 407
E37	XB1 - 2301 - 609

Key No.	Part Number
E38	XB1 - 2302 - 003
E39	XB1 - 2200 - 309
E40	XB1 - 2300 - 602
E41	XB1 - 2302 - 009
E42	XB1 - 2302 - 503
E43	XB1 - 2302 - 507
E44	XB1 - 2302 - 509
E45	XB1 - 2303 - 003
E46	XB1 - 2303 - 009
E47	XB1 - 2303 - 509
E48	XB1 - 2304 - 507
E49	XB1 - 2400 - 406
E50	XB1 - 2400 - 409
E51	XB1 - 2400 - 506
E52	XB1 - 2400 - 509
E53	XB1 - 2400 - 602
E54	XB1 - 2400 - 603
E55	XB1 - 2400 - 604
E56	XB1 - 2400 - 606
E57	XB1 - 2400 - 607
E58	XB1 - 2400 - 609
E59	XB1 - 2400 - 605
E60	XB1 - 2400 - 804
E61	XB1 - 2400 - 806
E62	XB1 - 2400 - 809
E63	XB1 - 2401 - 002
E64	XB1 - 2401 - 004
E65	XB1 - 2401 - 006
E66	XB1 - 2401 - 007
E67	XB1 - 2401 - 009
E68	XB1 - 2401 - 203
E69	XB1 - 2401 - 204
E70	XB1 - 2401 - 206
E71	XB1 - 2401 - 207
E72	XB1 - 2401 - 209
E73	XB1 - 2401 - 602
E74	XB1 - 2401 - 604

Key No.	Part Number
E75	XB1 - 2401 - 606
E76	XB1 - 2401 - 609
E78	XB1 - 2402 - 006
E79	XB1 - 2402 - 009
*E80	XB1 - 2402 - 506
E81	XB1 - 2402 - 509
E82	XB1 - 2403 - 509
E83	XB1 - 2403 - 009
E84	XB1 - 2403 - 505
E85	XB1 - 2404 - 009
E86	XB1 - 2404 - 507
E87	XB1 - 2402 - 309
E88	XB1 - 2500 - 603
E90	XB1 - 2500 - 609
E91	XB1 - 2500 - 809
E92	XB1 - 2500 - 803
E93	XB1 - 2501 - 009
E94	XB1 - 2501 - 609
E95	XB1 - 2502 - 009
E96	XB1 - 2502 - 509
E98	XB1 - 2504 - 009
E99	XB1 - 2505 - 009

F. FLAT HEAD MACHINE SCREWS
サラ小ネジ



Key No.	Part Number
F16	XB1 - 3200 - 609
F20	XB1 - 3300 - 409
F21	XB1 - 3300 - 502
F22	XB1 - 3300 - 509
F23	XB1 - 3300 - 601
F24	XB1 - 3300 - 604
F25	XB1 - 3300 - 606
F26	XB1 - 3300 - 609
F27	XB1 - 3300 - 802
F28	XB1 - 3300 - 806
F29	XB1 - 3300 - 807
F30	XB1 - 3300 - 809
F31	XB1 - 3301 - 002
F32	XB1 - 3301 - 006
F33	XB1 - 3301 - 009
F34	XB1 - 3301 - 202
F35	XB1 - 3301 - 209
F39	XB1 - 3302 - 505

Key No.	Part Number
F61	XB1 - 3400 - 602
F62	XB1 - 3400 - 609
F64	XB1 - 3400 - 804
F65	XB1 - 3400 - 806
F66	XB1 - 3400 - 809
F67	XB1 - 3401 - 006
F68	XB1 - 3401 - 009
F69	XB1 - 3401 - 206
F70	XB1 - 3402 - 005
F71	XB1 - 3402 - 509

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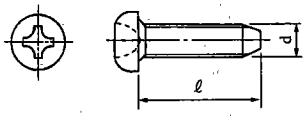
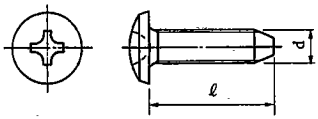
G. SELF-TAPPING SCREWS
タッピンネジ

Pan head self-tapping screws
ナベタッピンネジ



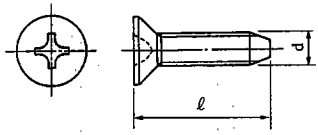
Key No.	Part Number	Key No.	Part Number
G01	XB4 - 7300 - 606	G19	XB4 - 7301 - 209
*G03	XB4 - 6301 - 009	G20	XB4 - 7300 - 509
*G07	XB4 - 7400 - 806	G21	XB3 - 1400 - 809
*G08	XB4 - 7401 - 209	G22	XB4 - 6200 - 507
*G09	XB4 - 7401 - 006	G23	XB4 - 7400 - 607
G10	XB4 - 7200 - 509	G24	XB4 - 7400 - 609
G11	XB3 - 1300 - 509	G25	XB4 - 7400 - 809
G12	XB3 - 1300 - 609	G26	XB4 - 7400 - 209
G13	XB3 - 1300 - 809	G27	XB4 - 7401 - 607
G14	XB3 - 1301 - 009	G28	XB4 - 7505 - 507
G15	XB4 - 7300 - 806	G29	XB4 - 7401 - 207
G16	XB4 - 7300 - 609	G30	XB4 - 7401 - 009
G17	XB4 - 7300 - 809		
G18	XB4 - 7301 - 009		

Bindin head self-tapping screws
バインドタッピンネジ



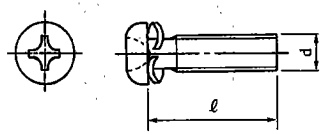
Key No.	Part Number	Key No.	Part Number
G31	XB3 - 2260 - 509	G54	XB3 - 2401 - 209
G40	XB3 - 2300 - 806	G55	XB3 - 2402 - 009
G41	XB3 - 2300 - 609	G61	XB5 - 2300 - 609
G42	XB3 - 2300 - 809	G65	XB5 - 2400 - 609
G43	XB3 - 2301 - 009	G67	XB5 - 2400 - 809
G44	XB3 - 2302 - 009	G69	XB5 - 2401 - 009
G45	XB3 - 2301 - 006		
G51	XB3 - 2400 - 609		
G52	XB3 - 2400 - 809		
G53	XB3 - 2401 - 009		

Flat head self-tapping screws
サラタッピンネジ



Key No.	Part Number
G71	XB3 - 3300 - 609
G72	XB3 - 3300 - 809
G81	XB3 - 3400 - 809
G82	XB3 - 3401 - 209
G97	XB3 - 8260 - 807
G98	XB3 - 8300 - 806

H. PAN HEAD MACHINE SCREWS WITH CAPTIVE SPRING WASHER
バネ座金付き十字ナベ小ネジ



Key No.	Part Number	Key No.	Part Number
H38	XB6 - 6300 - 509	H61	XB6 - 6400 - 605
H39	XB6 - 6300 - 603	H62	XB6 - 6400 - 805
H40	XB6 - 6400 - 609	H63	XB6 - 6401 - 005
H41	XB6 - 6300 - 609	H64	XB6 - 6401 - 205
H42	XB6 - 6300 - 505	H65	XB6 - 6401 - 605
H43	XB6 - 6300 - 605	H66	XB6 - 6402 - 005
H44	XB6 - 6300 - 805		
H45	XB6 - 6301 - 005	H81	XB6 - 6500 - 805
H46	XB6 - 6301 - 205	H82	XB6 - 6501 - 005
H47	XB6 - 6301 - 605	H83	XB6 - 6501 - 205
H48	XB6 - 6302 - 005	H85	XB6 - 6502 - 005

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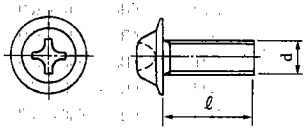
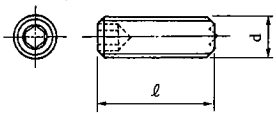
K. WASHER HEAD MACHINE SCREWS
TP小ネジ



Key No.	Part Number	Key No.	Part Number
K01	XB6 - 7200 - 809	*K60	XB6 - 7400 - 606
K02	XB6 - 7201 - 009	K61	XB6 - 7400 - 409
K10	XB5 - 6400 - 609	K62	XB6 - 7400 - 509
K11	XB5 - 6400 - 809	K63	XB6 - 7400 - 609
K20	XB6 - 7260 - 409	K64	XB6 - 7400 - 809
K21	XB6 - 7260 - 509	K65	XB6 - 7401 - 009
K22	XB6 - 7260 - 609	K66	XB6 - 7401 - 209
K40	XB6 - 7300 - 305	K67	XB6 - 7401 - 609
K41	XB6 - 7300 - 409	K68	XB6 - 7402 - 009
K42	XB6 - 7300 - 509	K69	XB6 - 7402 - 509
K43	XB6 - 7300 - 609		
K44	XB6 - 7300 - 809	K81	XB6 - 7500 - 609
K45	XB6 - 7301 - 009	K82	XB6 - 7500 - 809
K46	XB6 - 7301 - 209	K83	XB6 - 7501 - 009
K47	XB6 - 7301 - 609	K84	XB6 - 7501 - 609
K48	XB6 - 7302 - 009	K85	XB6 - 7502 - 009
K49	UN USE		

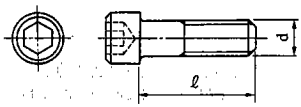
L. HEX SOCKET SETSCREWS AND SOCKET HEAD CAP SCREWS
六角穴付き止めネジおよび六角穴付きボルト

Hex socket setscrews
六角穴付き止めネジ



Key No.	Part Number	Key No.	Part Number
L01	XB6 - 1400 - 608	L14	XB6 - 2500 - 508
L02	XB6 - 2300 - 408	L16	XB6 - 2500 - 808
L03	XB6 - 2300 - 508	L17	XB6 - 2300 - 808
L04	XB6 - 2300 - 608		
L05	XB6 - 2300 - 409	L23	XB6 - 2601 - 008
L06	XB6 - 1400 - 408		
L07	XB6 - 2400 - 408		
L08	XB6 - 2400 - 508		
L09	XB6 - 2400 - 608		
L10	XB6 - 2400 - 808		
L11	XB6 - 2401 - 008		
L12	XB6 - 2300 - 309		
L13	XB6 - 2400 - 809		

Socket head cap screws
六角穴付きボルト



Key No.	Part Number	Key No.	Part Number
L52	XB7 - 1030 - 069	L74	XB7 - 1050 - 169
L53	XB7 - 1030 - 089	L75	XB7 - 1050 - 209
L54	XB7 - 1030 - 109	L77	XB7 - 1050 - 309
L55	XB7 - 1030 - 129	L78	XB7 - 1050 - 809
L56	XB7 - 1030 - 169		
L58	XB7 - 1030 - 259	L81	XB7 - 1060 - 109
		L82	XB7 - 1060 - 129
L62	XB7 - 1040 - 069	L83	XB7 - 1060 - 169
L63	XB7 - 1040 - 089	L86	XB7 - 1060 - 309
L64	XB7 - 1040 - 109		
L65	XB7 - 1040 - 129	*L90	XB7 - 1080 - 209
L66	XB7 - 1040 - 169	L91	XB7 - 1080 - 129
L67	XB7 - 1040 - 209	L92	XB7 - 1080 - 169
L68	XB7 - 1040 - 259	L93	XB7 - 1082 - 509
		*L94	XB7 - 1080 - 359
L71	XB7 - 1050 - 089	L95	XB7 - 1100 - 209
L72	XB7 - 1050 - 109		
L73	XB7 - 1050 - 129		

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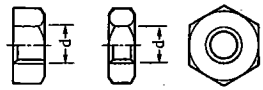
II. NUTS
ナット

M. HEXAGON NUTS
六角ナット

class 1
1 種

class 3
3 種



How to read Part Numbers
部品番号の見方

XB7 – 2100 – 309

- Hexagon nut 六角ナット
- Nominal diameter (d) ... M3 呼び径 (d)
- Material and surface treatment ..... Steel (black zinc plated) 材料および表面処理 鋼材 (黒色亜鉛メッキ)

XB7 – 210 .... class 1 1種

XB7 – 220 .... class 3 3種

Key No.	Part Number (class 1)	Key No.	Part Number (class 3)
M03	XB7 – 2100 – 309	M53	XB7 – 2200 – 309
M04	XB7 – 2100 – 409	M54	XB7 – 2200 – 409
M05	XB7 – 2100 – 509	M55	XB7 – 2200 – 509
M06	XB7 – 2100 – 609	M57	XB7 – 2200 – 809
M07	XB7 – 2100 – 809	M58	XB7 – 2201 – 009
M08	XB7 – 2100 – 805		
M11	XB7 – 2101 – 009		

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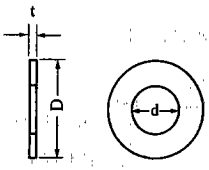
III. WASHERS AND SHIM WASHERS
ワッシャ

N. S & T, SHIM WASHERS
標準ワッシャ



How to read Part Numbers
部品番号の見方

XD1-1102-625

Shim washer
標準ワッシャ

- Inner diameter (d) ... 2.6mm
  内径 (d)
- Outer diameter (D)... Class 2 (See table 2)
  外径 (D) 2種 (表2参照)
- Thickness code 0.5mm
  板厚番号 See table 3
  表3参照

d (mm)	D (mm)		
	Class 1 1種	Class 2 2種	Class 3 3種
1.5	–	2.6	3.2
1.8	2.7	3.1	3.7
2.1	3.2	3.6	4.2
2.3	3.6	4	4.6
2.6	4	4.4	5
3.1	4.6	5	5.6
3.6	5.4	5.8	6.4
4.1	5.7	6.6	8
4.6	6.4	7.4	9
5.2	7.2	8.2	10
5.7	7.8	9	11
6.2	8.5	9.8	12
6.7	9.2	10.5	13
7.2	10	11.4	14
7.7	10.6	12.2	15
8.2	11.4	13	16
8.7	12	13.8	17
9.2	12.8	14.6	18
9.7	13.5	15.4	19

Table 2 表2

* Material : Brass
材料 : 黄銅

Thickness code 板厚番号	t (mm)
0	0.05
1	0.1
2	0.2
3	0.3
4	0.4
5	0.5
6	0.6
7	0.7
8	0.8
9	1

Table 3 表3

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Key No.	Part Number
N11	XD1 – 1102 – 112
N15	XD1 – 1102 – 121
N38	XD1 – 1103 – 119
N40	XD1 – 1103 – 121
N41	XD1 – 1103 – 122
N42	XD1 – 1103 – 123
N43	XD1 – 1103 – 124
N44	XD1 – 1103 – 125
N48	XD1 – 1103 – 131
N50	XD1 – 1103 – 133
N52	XD1 – 1103 – 135
N57	XD1 – 1103 – 139
N61	UN USE
N62	XD1 – 1103 – 625
N65	XD1 – 1103 – 629
N74	XD1 – 1103 – 639
N75	XD1 – 1104 – 111
N76	XD1 – 1104 – 112
N77	XD1 – 1104 – 113
N78	XD1 – 1104 – 114
N79	XD1 – 1104 – 115
N80	XD1 – 1104 – 119
N81	XD1 – 1104 – 122
N82	XD1 – 1104 – 123
N84	XD1 – 1104 – 125
N85	XD1 – 1104 – 127
*N86	XD1 – 1104 – 126
N88	XD1 – 1104 – 129
N90	XD1 – 1104 – 132
N91	XD1 – 1104 – 133
N92	XD1 – 1104 – 135
N93	XD1 – 1104 – 136
N94	XD1 – 1104 – 139
N95	XD1 – 1104 – 615
N96	XD1 – 1104 – 632
N97	XD1 – 1104 – 134

Key No.	Part Number
S10	XD1 – 1105 – 221
S16	XD1 – 1105 – 230
S17	XD1 – 1105 – 231
S18	XD1 – 1105 – 232
S20	XD1 – 1105 – 234
S21	XD1 – 1105 – 235
S22	XD1 – 1105 – 236
S23	XD1 – 1105 – 237
S45	XD1 – 1105 – 738
S46	XD1 – 1105 – 739
S49	XD1 – 1106 – 213
S52	XD1 – 1106 – 216
S55	XD1 – 1106 – 219
S57	XD1 – 1106 – 221
S58	XD1 – 1106 – 222
S59	XD1 – 1106 – 223
S61	XD1 – 1106 – 225
S63	XD1 – 1106 – 227
S64	XD1 – 1106 – 228
S65	XD1 – 1106 – 229
S67	XD1 – 1106 – 231
S68	XD1 – 1106 – 232
S69	XD1 – 1106 – 233
S71	XD1 – 1106 – 235
S75	XD1 – 1106 – 239
S88	XD1 – 1106 – 728
S92	XD1 – 1106 – 732
S95	XD1 – 1106 – 735
S99	XD1 – 1106 – 739

Key No.	Part Number
T14	XD1 – 1107 – 224
T15	XD1 – 1107 – 225
T18	XD1 – 1107 – 228
T22	XD1 – 1107 – 232
T23	XD1 – 1107 – 233
T25	XD1 – 1107 – 235
T53	XD1 – 1108 – 213
T55	XD1 – 1108 – 215
T56	XD1 – 1108 – 216
T59	XD1 – 1108 – 219
T61	XD1 – 1108 – 221
T62	XD1 – 1108 – 222
T63	XD1 – 1108 – 223
T64	XD1 – 1108 – 224
T65	XD1 – 1108 – 225
T66	XD1 – 1108 – 226
T68	XD1 – 1108 – 228
T69	XD1 – 1108 – 229
T72	XD1 – 1108 – 232
T75	XD1 – 1108 – 235
T79	XD1 – 1108 – 239
T88	XD1 – 1109 – 235
T90	XD1 – 1109 – 239

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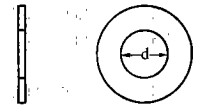
U. PLAIN WASHERS, SPRING WASHERS & TOOTHED LOCK WASHERS
平座金、バネ座金および歯付き座金

Plain washers
平座金

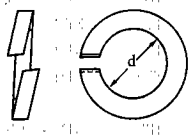


How to read Part Numbers
部品番号の見方

XD1-2100-307
- Plain washer 平座金
- Inner diameter (d) ..... 3.0mm 呼び径 (d)
- Material and surface treatment ..... Steel (nickel plated) 材料および表面処理 鋼材 (ニッケルメッキ)

Key No.	Part Number	Key No.	Part Number
U01	XD1 - 2100 - 207	U06	XD1 - 2100 - 607
U02	XD1 - 2100 - 405	U07	XD1 - 2100 - 807
U03	XD1 - 2100 - 307	U08	XD1 - 2101 - 007
U04	XD1 - 2100 - 407	U09	XD1 - 2100 - 509
U05	XD1 - 2100 - 507		

Spring washers
バネ座金



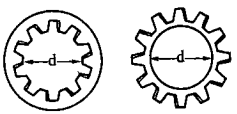
How to read Part Numbers
部品番号の見方

XD1-3100-507
- Spring washer バネ座金
- Inner diameter (d) ..... 5.0mm 呼び径 (d)
- Material and surface treatment ..... Steel (nickel plated) 材料および表面処理 鋼材 (ニッケルメッキ)

Key No.	Part Number	Key No.	Part Number
U51	XD1 - 3100 - 207	*U58	XD1 - 3100 - 609
U53	XD1 - 3100 - 307	*U59	XD1 - 3100 - 809
U54	XD1 - 3100 - 407		
U55	XD1 - 3100 - 507		
U56	XD1 - 3100 - 607	U61	XD1 - 3101 - 007
U57	XD1 - 3100 - 807		

Toothed lock washers
歯付き座金

Inner toothed type 内歯形 / Outer toothed type 内歯形



How to read Part Numbers
部品番号の見方

XD1-4100-302
- Toothed lock washer 歯付き座金
- Inner diameter (d) ..... 3mm 呼び径 (d)
- Material and surface treatment ..... Stainless (without surface treatment) 材料および表面処理 ステンレス (表面処理なし)

XD1 – 410... Inner toothed type 内歯形

XD1 – 420... Outer toothed type 外歯形

Key No.	Part Number	Key No.	Part Number
U81	XD1 - 4100 - 202	U91	XD1 - 4200 - 302
U83	XD1 - 4100 - 302	U92	XD1 - 4200 - 402
U84	XD1 - 4100 - 402	U93	XD1 - 4200 - 502
U85	XD1 - 4100 - 502	U94	XD1 - 4200 - 602
U86	XD1 - 4100 - 602	U95	XD1 - 4200 - 802
U87	XD1 - 4100 - 802		

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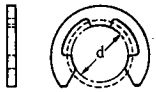
IV. RETAINING RINGS
止め輪

V. E RINGS
E形止め輪



How to read Part Numbers
部品番号の見方

XD2 – 1100 – 172

- XD2 – E ring / E形止め輪
- 1100 – Material and surface treatment / 材料および表面処理
- 172 – Inner diameter (d) ..... 1.7mm / 呼び径 (d)

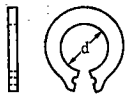
XD2 – 110... Class 1 / 1種
XD2 – 120... Class 2 / 2種

- 2 .... Stainless (without surface treatment) / ステンレス (表面処理なし)
- 7 .... Steel (nickel plated) / 鋼材 (ニッケルメッキ)

Key No.	Part Number (class 1)
V04	XD2 – 1100 – 172
V05	XD2 – 1100 – 202
V06	XD2 – 1100 – 242
V07	XD2 – 1100 – 282
V08	XD2 – 1100 – 322
V09	XD2 – 1100 – 372
V10	XD2 – 1100 – 402
V11	XD2 – 1100 – 422
V12	XD2 – 1100 – 502
V13	XD2 – 1100 – 582
V14	XD2 – 1100 – 602
V15	XD2 – 1100 – 642
V16	XD2 – 1100 – 742
V17	XD2 – 1100 – 802

Key No.	Part Number (class 2)
V55	XD2 – 1200 – 322
V56	XD2 – 1200 – 302
V57	XD2 – 1200 – 402
V58	XD2 – 1200 – 502
V59	XD2 – 1200 – 642
V60	XD2 – 1200 – 649
V61	XD2 – 1200 – 802
*V62	XD2 – 1200 – 602
*V66	XD2 – 1200 – 902
V70	XD2 – 1200 – 907

W. GRIP RINGS
グリップ止め輪



How to read Part Numbers
部品番号の見方

XD1 – 2100 – 502

- XD1 – Grip ring / グリップ止め輪
- 2100 – Material and surface treatment ..... Stainless (without surface treatment) / 材料および表面処理 ステンレス (表面処理なし)
- 502 – Inner diameter (d) ..... 5.0mm / 呼び径 (d)

Key No.	Part Number
W01	XD2 – 2100 – 202
W03	XD2 – 2100 – 302
W05	XD2 – 2100 – 402
W07	XD2 – 2100 – 502
W08	XD2 – 2100 – 602
W10	XD2 – 2100 – 802
W12	XD2 – 2100 – 002

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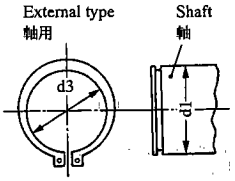
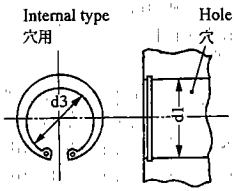
X. CRINGS
C形止め輪





How to read Part Numbers
部品番号の見方

XD2-3100-202

C ring
C形止め輪

Nominal diameter (d1) 20mm
呼び径 (d1)

Material and surface treatment
材料および表面処理

2 .... Stainless (without surface treatment)
ステンレス (表面処理なし)

8 .... Steel (phosphated)
鋼材 (鉄鋼燐酸塩被膜)

XD1 – 310... External type
軸用

XD1 – 320... Internal type
穴用

External type
軸用

Nominal diameter 呼び径	d1 (mm)	d3 (mm)
010	10	9.3
012	12	11.1
014	14	12.9
015	15	13.8
016	16	14.7
017	17	15.7
018	18	16.5
020	20	18.5
022	22	20.5
025	25	23.2
028	28	25.9
030	30	27.9
032	32	29.6
035	35	32.2

Table 4　表4

Internal type
穴用

Nominal diameter 呼び径	d1 (mm)	d3 (mm)	Nominal diameter 呼び径	d1 (mm)	d3 (mm)
010	10	10.7	040	40	43.5
011	11	11.8	042	42	45.5
012	12	13	045	45	48.5
014	14	15.1	047	47	50.5
016	16	17.3	050	50	54.2
018	18	19.5	052	52	56.2
019	19	20.5	055	55	59.2
020	20	21.5	060	60	64.2
022	22	23.5	062	62	66.2
025	25	26.9	068	68	72.5
028	28	30.1	072	72	76.5
030	30	32.1	075	75	79.5
032	32	34.4	080	80	85.5
035	35	37.8	085	85	90.5
037	37	39.8	090	90	95.5
			095	95	100.5

Table 5　表5

Key No.	Part Number
X01	XD2 – 3100 – 102
X03	XD2 – 3100 – 122
X06	XD2 – 3100 – 148
X07	XD2 – 3100 – 152
X10	XD2 – 3100 – 168
X11	XD2 – 3100 – 172
X13	XD2 – 3100 – 182
X15	XD2 – 3100 – 202
X16	XD2 – 3100 – 208
X18	XD2 – 3100 – 228
X20	XD2 – 3100 – 258
X24	XD2 – 3100 – 308

Key No.	Part Number
X39	XD2 – 3200 – 162
X47	XD2 – 3200 – 222
X48	XD2 – 3200 – 228
X50	XD2 – 3200 – 258
X52	XD2 – 3200 – 288
X53	XD2 – 3200 – 302
X56	XD2 – 3200 – 328

Key No.	Part Number
X60	XD2 – 3200 – 378
X63	XD2 – 3200 – 422
X64	XD2 – 3200 – 428
X74	XD2 – 3200 – 558
X75	XD2 – 3200 – 602
X79	XD2 – 3200 – 682
X80	XD2 – 3200 – 688

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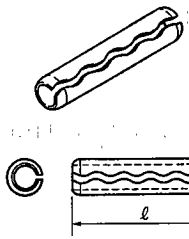
V. PINS
ピン

Y. SPRING AND DOWEL PINS
スプリングピンおよび平行ピン

Spring pins
スプリングピン



How to read Part Numbers
部品番号の見方

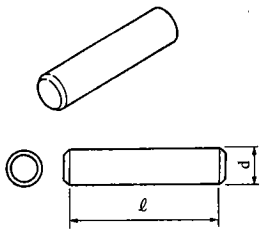
XD3-1200-122

Spring pin
スプリングピン

- Nominal diameter (D).... 2.0mm
  呼び径 (D)
- Length (ℓ).....12mm
  長さ (ℓ)
- Material and surface treatment ..... Stainless (without surface treatment)
  材料および表面処理 ステンレス (表面処理なし)

Key No.	Part Number	Key No.	Part Number
Y04	XD3 - 1120 - 102	Y29	XD3 - 1200 - 202
		Y33	XD3 - 1250 - 162
*Y13	XD3 - 1160 - 062		
Y14	XD3 - 1160 - 122	Y41	XD3 - 1300 - 062
Y15	XD3 - 1160 - 142	Y42	XD3 - 1300 - 082
		Y43	XD3 - 1300 - 102
Y21	XD3 - 1200 - 052	Y44	XD3 - 1300 - 122
Y22	XD3 - 1200 - 062	Y45	XD3 - 1300 - 142
Y23	XD3 - 1200 - 082	Y46	XD3 - 1300 - 162
Y24	XD3 - 1200 - 102	Y47	XD3 - 1300 - 202
Y25	XD3 - 1200 - 122	Y49	XD3 - 1300 - 322
Y26	XD3 - 1200 - 142		
Y27	XD3 - 1200 - 162	Y51	XD3 - 1400 - 182
Y28	XD3 - 1200 - 182		

Dowel pins
平行ピン



How to read Part Numbers
部品番号の見方

XD3-2200-082

Dowel pin
平行ピン

- Nominal diameter (d)..... 2.0mm
  呼び径 (d)
- Length (ℓ).....8mm
  長さ (ℓ)
- Material and surface treatment ..... Stainless (without surface treatment)
  材料および表面処理 ステンレス (表面処理なし)

Key No.	Part Number	Key No.	Part Number
Y62	XD3 - 2100 - 082	Y78	XD3 - 2200 - 202
Y63	XD3 - 2100 - 102	Y80	XD3 - 2200 - 252
*Y70	XD3 - 2200 - 062	Y81	XD3 - 2300 - 142
Y71	XD3 - 2200 - 082	Y82	XD3 - 2300 - 162
Y72	XD3 - 2200 - 102	Y83	XD3 - 2300 - 182
Y73	XD3 - 2200 - 122	Y84	XD3 - 2300 - 202
Y74	XD3 - 2200 - 142	Y85	XD3 - 2300 - 222
Y75	XD3 - 2200 - 162	Y86	XD3 - 2300 - 122
Y76	XD3 - 2200 - 182	Y87	XD3 - 2300 - 082

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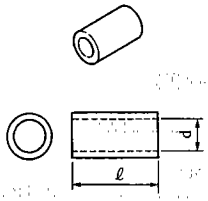
VI. SPACERS
スペーサ

Z. SPACERS
スペーサ



How to read Part Numbers
部品番号の見方

XZ1 – 1300 – 305

- XZ1 – Spacer (スペーサ)
- 13 – Nominal diameter (d)..... 3.0mm (呼び径 (d))
- 00 – Length (ℓ)..... 3.0mm (長さ (ℓ))
- 5 – Material and surface treatment ..... Steel (zinc plated) (材料および表面処理 鋼 (亜鉛メッキ))

Key No.	Part Number
Z21	XZ1 - 1300 - 305
Z22	XZ1 - 1300 - 405
Z24	XZ1 - 1300 - 605
Z25	XZ1 - 1300 - 705
Z26	XZ1 - 1300 - 805
Z29	XZ1 - 1301 - 205
Z30	XZ1 - 1301 - 605
Z31	XZ1 - 1301 - 805

Key No.	Part Number
Z41	XZ1 - 1400 - 205
Z42	XZ1 - 1400 - 305
Z43	XZ1 - 1400 - 405
Z44	XZ1 - 1400 - 505
Z45	XZ1 - 1400 - 605
Z46	XZ1 - 1400 - 705
Z47	XZ1 - 1400 - 805
Z48	XZ1 - 1400 - 905
Z49	XZ1 - 1401 - 005
Z50	XZ1 - 1401 - 105
Z51	XZ1 - 1401 - 205
Z52	XZ1 - 1401 - 605
Z53	XZ1 - 1401 - 805
Z54	XZ1 - 1402 - 505

Key No.	Part Number
Z61	XZ1 - 1500 - 605
Z63	XZ1 - 1501 - 205
Z64	XZ1 - 1501 - 605
Z69	XZ1 - 1600 - 805
Z81	XZ1 - 1800 - 455

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D NUMERICAL INDEX
部品索引表

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98 – 0093 – 000	103 – 5A
98 – 0093 – 000	103 – 6A
98 – 8212 – 000	110 – 9
97 – 5527 – 000	560 – 12
FA0 – 0151 – 00P	930 – 5
FA0 – 0152 – 00P	960 – 5
FA0 – 0153 – 00P	960 – 1
FA0 – 0155 – 00P	102 – 20
FA0 – 0162 – 00P	300 – 3
FA0 – 0163 – 00P	300 – 8
FA0 – 0166 – 00P	100 – 13E
FA0 – 0167 – 00P	400 – 24
FA0 – 0169 – 00P	315 – 15
FA0 – 0175 – 00P	190 – 5
FA0 – 0186 – 00P	100 – 18
FA0 – 0188 – 00P	104 – 22
FA1 – 0056 – 000	103 – 27
FA1 – 9548 – 000	102 – 8
FA1 – 9972 – 000	980 – 10
FA2 – 7162 – 000	100 – 3
	100 – 13C
FA2 – 8227 – 000	320 – 5
FA2 – 9037 – 000	810 – 67
FA2 – 9078 – 000	810 – 66
FA3 – 8493 – 000	102 – 1
FA3 – 9055 – 000	160 – 5A
FA3 – 9120 – 000	102 – 21
FA4 – 2766 – 000	640 – 39
FA4 – 5594 – 000	351 – 8
FA5 – 1185 – 000	160 – 3
FA5 – 1564 – 020	210 – 19
FA5 – 1567 – 000	210 – 42
FA5 – 1568 – 000	210 – 22
FA5 – 1580 – 000	210 – 3
FA5 – 1589 – 000	210 – 5
FA5 – 1593 – 000	210 – 6
FA5 – 1594 – 000	210 – 7
FA5 – 1595 – 000	210 – 8
FA5 – 1596 – 000	210 – 9
FA5 – 1597 – 000	210 – 10
FA5 – 1598 – 000	210 – 11
FA5 – 1599 – 000	210 – 12
FA5 – 1600 – 000	210 – 13
FA5 – 1601 – 000	210 – 14
FA5 – 1603 – 000	210 – 18
FA5 – 1606 – 000	210 – 17
FA5 – 1608 – 000	210 – 23
FA5 – 1611 – 020	210 – 15
FA5 – 1613 – 000	210 – 33
FA5 – 1615 – 000	210 – 25
FA5 – 1628 – 000	400 – 7
FA5 – 1630 – 000	400 – 8
FA5 – 1631 – 020	400 – 9
FA5 – 1632 – 000	400 – 10
FA5 – 1633 – 030	400 – 11
FA5 – 1634 – 000	400 – 12
FA5 – 1635 – 000	400 – 13
FA5 – 1636 – 000	400 – 14
FA5 – 1637 – 000	400 – 15
FA5 – 1638 – 000	400 – 16
FA5 – 1641 – 000	401 – 1
FA5 – 1642 – 000	401 – 2
FA5 – 1643 – 000	401 – 3
FA5 – 1644 – 000	401 – 4
FA5 – 1646 – 000	401 – 5
FA5 – 1647 – 000	401 – 6
FA5 – 1650 – 000	400 – 19
FA5 – 1656 – 000	220 – 3
FA5 – 1757 – 030	640 – 1
FA5 – 1758 – 000	640 – 2
FA5 – 1759 – 000	640 – 31
FA5 – 1761 – 000	640 – 25A
FA5 – 1762 – 000	640 – 14
FA5 – 1763 – 000	640 – 3
FA5 – 1764 – 000	640 – 4
FA5 – 1765 – 000	640 – 5
FA5 – 1766 – 000	640 – 6
FA5 – 1767 – 000	640 – 7
FA5 – 1768 – 000	640 – 8
FA5 – 1769 – 000	640 – 34
FA5 – 1771 – 000	640 – 9
FA5 – 1773 – 000	640 – 10
FA5 – 1777 – 000	640 – 27A
FA5 – 1778 – 000	640 – 29A
FA5 – 1779 – 000	640 – 11

PART NUMBER	FIGURE & KEY NO.
FA5 – 1780 – 000	640 – 12
FA5 – 1781 – 000	640 – 40
FA5 – 1782 – 000	640 – 35
FA5 – 1783 – 000	640 – 28A
FA5 – 1784 – 000	640 – 28B
FA5 – 1785 – 000	640 – 27B
FA5 – 1787 – 000	640 – 13
FA5 – 1788 – 000	640 – 24
FA5 – 1789 – 000	640 – 27C
FA5 – 1790 – 000	640 – 38
FA5 – 1793 – 000	640 – 27E
FA5 – 1794 – 000	640 – 23
FA5 – 1802 – 000	102 – 24
FA5 – 1852 – 000	351 – 2
FA5 – 1853 – 000	351 – 3
FA5 – 1854 – 000	351 – 4
FA5 – 1855 – 000	351 – 5
FA5 – 1862 – 000	560 – 6
FA5 – 1873 – 000	560 – 7
FA5 – 1874 – 020	560 – 8
FA5 – 1875 – 020	560 – 9
FA5 – 1878 – 000	560 – 10
FA5 – 1882 – 000	560 – 3
FA5 – 1891 – 000	350 – 1
FA5 – 1892 – 020	350 – 2
FA5 – 1893 – 000	350 – 3
FA5 – 1894 – 000	350 – 4
FA5 – 1895 – 000	350 – 5
FA5 – 1896 – 000	350 – 6
FA5 – 1898 – 000	350 – 8
FA5 – 1901 – 000	350 – 10
FA5 – 1903 – 000	350 – 12
FA5 – 1904 – 000	350 – 13
FA5 – 1905 – 000	350 – 14
FA5 – 1906 – 010	350 – 15
FA5 – 1907 – 000	350 – 16
FA5 – 1908 – 000	350 – 17
FA5 – 1909 – 000	350 – 26
FA5 – 1912 – 000	103 – 22A
FA5 – 1916 – 050	810 – 1
FA5 – 1920 – 030	810 – 3
FA5 – 1921 – 000	810 – 4
FA5 – 1922 – 000	810 – 5
FA5 – 1923 – 000	810 – 6
FA5 – 1924 – 000	810 – 7
FA5 – 1925 – 000	810 – 8
FA5 – 1926 – 000	810 – 9
FA5 – 1927 – 000	810 – 10
FA5 – 1928 – 000	810 – 11
FA5 – 1930 – 000	810 – 12
FA5 – 1931 – 000	810 – 13
FA5 – 1932 – 000	810 – 14
FA5 – 1935 – 000	810 – 15
FA5 – 1936 – 000	810 – 16
FA5 – 1938 – 020	810 – 17
FA5 – 1939 – 000	810 – 18
FA5 – 1940 – 000	810 – 19
FA5 – 1941 – 000	810 – 20
FA5 – 1942 – 000	810 – 21
FA5 – 1943 – 000	810 – 22
FA5 – 1944 – 000	810 – 23
FA5 – 1947 – 000	810 – 26
FA5 – 1948 – 000	810 – 27
FA5 – 1949 – 000	810 – 32
FA5 – 1950 – 000	810 – 35
FA5 – 1951 – 000	810 – 28
FA5 – 1952 – 000	810 – 29
FA5 – 1956 – 000	810 – 31
FA5 – 1958 – 000	810 – 33
FA5 – 1966 – 000	810 – 39
FA5 – 1967 – 000	810 – 40
FA5 – 1968 – 000	810 – 41
FA5 – 1969 – 000	810 – 42
FA5 – 1970 – 000	810 – 43
FA5 – 1971 – 000	810 – 81
FA5 – 1973 – 000	810 – 82
FA5 – 1974 – 000	810 – 25
FA5 – 1983 – 010	250 – 2
FA5 – 1984 – 000	250 – 3
FA5 – 1988 – 000	250 – 14
FA5 – 2031 – 030	980 – 1
FA5 – 2032 – 000	980 – 2
FA5 – 2033 – 000	980 – 3
FA5 – 2034 – 000	980 – 4
FA5 – 2035 – 000	980 – 5

PART NUMBER	FIGURE & KEY NO.
FA5 – 2036 – 000	980 – 6
FA5 – 2037 – 000	980 – 7
FA5 – 2048 – 000	101 – 8
FA5 – 2066 – 000	104 – 17
FA5 – 2071 – 000	102 – 2
FA5 – 2072 – 000	102 – 9
FA5 – 2073 – 000	102 – 8
FA5 – 2090 – 000	103 – 23
FA5 – 2091 – 000	102 – 3
FA5 – 2092 – 000	102 – 4
FA5 – 2099 – 000	101 – 17
FA5 – 2105 – 000	101 – 2
FA5 – 2106 – 000	101 – 3
FA5 – 2107 – 000	102 – 31
FA5 – 2108 – 020	102 – 10
FA5 – 2121 – 000	100 – 13B
FA5 – 2126 – 000	102 – 5
FA5 – 2160 – 000	350 – 27
FA5 – 2163 – 000	102 – 34
FA5 – 2164 – 000	100 – 14
FA5 – 2231 – 000	300 – 12
FA5 – 4614 – 000	915 – 1
FA6 – 3921 – 000	810 – 2
FA6 – 4681 – 030	810 – 30
FA6 – 4682 – 030	810 – 34
FA6 – 4683 – 000	810 – 37
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FA6 – 4685 – 000	810 – 36
FA6 – 5188 – 000	210 – 16
FA6 – 5235 – 000	970 – 1
FA6 – 5605 – 000	104 – 18
FA6 – 5625 – 000	100 – 10
FA6 – 5639 – 000	160 – 1
FA6 – 5640 – 000	160 – 2
FA6 – 5641 – 000	160 – 6
FA6 – 5650 – 000	160 – 4
FA6 – 5660 – 000	102 – 27
FA6 – 6867 – 000	100 – 17
FA6 – 7670 – 000	915 – 2
FA6 – 8611 – 000	914 – 1
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FA9 – 1499 – 000	100 – 9A
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FC1 – 0127 – 000	104 – 7
FC1 – 0239 – 000	103 – 33
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FC1 – 0634 – 00P	210 – 31
FC1 – 0635 – 00P	210 – 21
FC1 – 0638 – 00P	210 – 4
FC1 – 0639 – 00P	210 – 29
FC1 – 0650 – 00P	450 – 13
FC1 – 0655 – 000	450 – 12A
FC1 – 0658 – 00P	450 – 10
FC1 – 0659 – 00P	450 – 7
FC1 – 0660 – 00P	450 – 9
FC1 – 0661 – 00P	450 – 6
FC1 – 0662 – 00P	450 – 8
FC1 – 0664 – 00P	450 – 3
FC1 – 0666 – 00P	450 – 4
FC1 – 0675 – 00P	320 – 1
FC1 – 0676 – 00P	320 – 2
FC1 – 0677 – 00P	320 – 3
FC1 – 0679 – 00P	103 – 12
FC1 – 0680 – 00P	103 – 11
FC1 – 0681 – 00P	103 – 10
FC1 – 0685 – 00P	351 – 7
FC1 – 0693 – 00P	102 – 17
FC1 – 0694 – 00P	102 – 15
FC1 – 0705 – 00P	350 – 7
FC1 – 0706 – 00P	350 – 9
FC1 – 0710 – 00P	102 – 22
FC1 – 0712 – 00P	103 – 16
FC1 – 0713 – 00P	103 – 13

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PART NUMBER	FIGURE & KEY NO.
FC1 – 0717 – 00P	102 – 33
FC1 – 0720 – 00P	102 – 35
FC1 – 0726 – 01P	250 – 1
FC1 – 0730 – 01P	220 – 1
FC1 – 0736 – 00P	325 – 21
FC1 – 0739 – 00P	325 – 20
FC1 – 0740 – 00P	325 – 3
FC1 – 0741 – 00P	325 – 4
FC1 – 0744 – 01P	325 – 2
FC1 – 0746 – 00P	325 – 10
FC1 – 0751 – 00P	100 – 7
FC1 – 0754 – 00P	325 – 16
FC1 – 0755 – 00P	325 – 15
FC1 – 0758 – 00P	325 – 7
FC1 – 0764 – 00P	325 – 14
FC1 – 0765 – 00P	325 – 22
FC1 – 0769 – 00P	325 – 12
FC1 – 0770 – 00P	325 – 5
FC1 – 0771 – 00P	325 – 8A
FC1 – 0772 – 00P	325 – 6
FC1 – 0779 – 00P	103 – 9
FC1 – 0780 – 00P	315 – 1
FC1 – 0781 – 00P	315 – 13
FC1 – 0782 – 00P	315 – 4
FC1 – 0783 – 00P	315 – 14
FC1 – 0787 – 00P	315 – 6
FC1 – 0788 – 01P	315 – 2
FC1 – 0789 – 01P	315 – 5
FC1 – 0790 – 00P	315 – 3
FC1 – 0791 – 00P	315 – 10
FC1 – 0792 – 00P	315 – 8
FC1 – 0794 – 00P	315 – 11
FC1 – 0893 – 01P	190 – 1
FC1 – 0898 – 00P	105 – 11
FC1 – 0899 – 00P	105 – 12
FC1 – 0901 – 00P	105 – 13
FC1 – 0910 – 00P	300 – 1
FC1 – 0913 – 00P	300 – 6A
FC1 – 0914 – 00P	300 – 2
FC1 – 0915 – 00P	300 – 14
FC1 – 0916 – 00P	300 – 5
FC1 – 0917 – 00P	300 – 10
FC1 – 0918 – 00P	300 – 11
FC1 – 0928 – 00P	101 – 4
FC1 – 0929 – 00P	101 – 5
FC1 – 0931 – 00P	930 – 1
FC1 – 0932 – 00P	930 – 2
FC1 – 0936 – 00P	960 – 3
FC1 – 0937 – 00P	960 – 4
FC1 – 0965 – 00P	105 – 2
FC1 – 0966 – 00P	105 – 1
FC1 – 0968 – 00P	101 – 1
FC1 – 0970 – 00P	105 – 5A
FC1 – 0977 – 00P	102 – 25
FC1 – 0978 – 00P	101 – 10
FC1 – 0980 – 00P	103 – 35
FC1 – 0982 – 00P	101 – 15
FC1 – 0983 – 00P	101 – 18
FC1 – 0986 – 00P	104 – 2
FC1 – 0988 – 00P	102 – 19
FC1 – 0989 – 00P	110 – 3
FC1 – 0992 – 00P	103 – 32
FC1 – 0993 – 00P	103 – 8
FC1 – 0997 – 00P	100 – 8
FC1 – 0998 – 00P	100 – 5
FC1 – 0999 – 00P	101 – 14
FC1 – 1007 – 00P	130 – 8
FC1 – 1008 – 01P	130 – 9
FC1 – 1009 – 00P	130 – 10
FC1 – 1010 – 00P	130 – 6
FC1 – 1013 – 00P	103 – 31
FC1 – 1014 – 00P	102 – 28
FC1 – 1015 – 00P	105 – 3
FC1 – 1025 – 00P	350 – 11
FC1 – 3540 – 00P	101 – 11
FC1 – 3541 – 00P	320 – 4
FC1 – 3544 – 00P	100 – 6A
FC1 – 3548 – 00P	325 – 8B
FC1 – 3550 – 00P	100 – 13D
FC1 – 3551 – 00P	101 – 24
FC1 – 3552 – 00P	100 – 13A
FC1 – 3553 – 00P	325 – 9A
FC1 – 3554 – 00P	325 – 11A
FC1 – 3561 – 00P	103 – 18
FC1 – 3562 – 00P	103 – 21

PART NUMBER	FIGURE & KEY NO.
FC1 – 3563 – 00P	104 – 9
FC1 – 3564 – 00P	102 – 16
FC1 – 3568 – 00P	400 – 20
FC1 – 3569 – 00P	401 – 9
FC1 – 3570 – 00P	104 – 5
FC1 – 5358 – 00P	100 – 4A
FC1 – 5359 – 00P	100 – 4B
FC1 – 5360 – 00P	100 – 2
FC1 – 5361 – 00P	100 – 1
FC1 – 5364 – 00P	103 – 2
FC1 – 5365 – 00P	210 – 20
FC1 – 5366 – 00P	180 – 4
FC1 – 5367 – 00P	180 – 3
FC1 – 5369 – 00P	103 – 22B
FC1 – 5370 – 00P	100 – 18
FC1 – 5371 – 00P	100 – 16
FC1 – 5373 – 00P	130 – 3
FC1 – 5374 – 00P	130 – 2
FC1 – 5375 – 00P	130 – 11
FC1 – 5378 – 00P	130 – 13
FC1 – 5381 – 00P	130 – 12
FC1 – 5382 – 00P	130 – 24
FC1 – 5383 – 00P	130 – 16
FC1 – 5384 – 00P	130 – 17
FC1 – 5385 – 00P	130 – 14
FC1 – 5386 – 00P	130 – 7
FC1 – 5387 – 00P	130 – 4
FC1 – 5388 – 00P	130 – 5
FC1 – 5389 – 00P	130 – 23
FC1 – 5390 – 00P	130 – 21
FC1 – 5391 – 00P	130 – 20
FC1 – 5392 – 00P	130 – 19
FC1 – 5393 – 00P	130 – 18
FC1 – 5394 – 00P	130 – 22
FC1 – 5395 – 00P	130 – 15
FC1 – 5396 – 00P	130 – 25
FC1 – 5397 – 00P	130 – 26
FC1 – 5398 – 00P	130 – 1
FC1 – 5402 – 00P	103 – 7
FC1 – 5405 – 00P	315 – 9
FC1 – 5407 – 00P	325 – 13
FC1 – 6832 – 000	810 – 83
FC1 – 9002 – 00P	105 – 10
FF0 – 0051 – 00P	102 – 12
FF0 – 0066 – 01P	100 – 6
FF1 – 9381 – 000	210 – 36
FF1 – 9382 – 000	210 – 37
FF1 – 9385 – 000	400 – 3
FF1 – 9386 – 000	400 – 4
FF1 – 9387 – 000	400 – 5
FF1 – 9388 – 000	401 – 8
FF1 – 9403 – 030	101 – 20
FF1 – 9406 – 000	640 – 25
FF1 – 9407 – 000	640 – 26
FF1 – 9408 – 000	640 – 27
FF1 – 9409 – 000	640 – 28
FF1 – 9410 – 000	640 – 29
FF1 – 9411 – 000	640 – 30
FF1 – 9412 – 000	102 – 23
FF1 – 9414 – 020	250 – 12
FF1 – 9430 – 000	300 – 7
FF1 – 9435 – 000	210 – 38
FF1 – 9438 – 050	560 – 2
FF1 – 9440 – 030	560 – 4
FF1 – 9446 – 030	810 – 71
FF1 – 9447 – 020	810 – 72
FF1 – 9448 – 020	810 – 73
FF1 – 9449 – 000	810 – 74
FF1 – 9450 – 000	810 – 75
FF1 – 9451 – 020	980 – J801
FF2 – 0001 – 000	980 – FG
FF2 – 0002 – 000	980 – J 5
FF2 – 0003 – 000	980 – J 4
FF2 – 0004 – 000	980 – W 1
FF2 – 0005 – 000	980 – P
FF2 – 0006 – 000	980 – J 2
FF2 – 0007 – 000	980 – J 3
FF2 – 0012 – 000	100 – 9
FF2 – 0658 – 000	351 – 9
FF2 – 0666 – 000	350 – 25
FF2 – 1100 – 000	210 – 1
FF2 – 1572 – 000	400 – 2
FF2 – 1573 – 000	400 – 17
FF2 – 1574 – 000	400 – 18
FF2 – 3941 – 000	180 – 5

PART NUMBER	FIGURE & KEY NO.
FF2 – 3951 – 000	100 – 15
FF2 – 5578 – 00P	325 – 8
FF2 – 5578 – 000	560 – 5
FF2 – 5580 – 01P	250 – 13
FF2 – 5581 – 00P	103 – 19
FF2 – 5583 – 00P	210 – 34
FF2 – 5585 – 00P	210 – 35
FF2 – 5586 – 00P	210 – 39
FF2 – 5588 – 01P	450 – 12
FF2 – 5589 – 01P	450 – 1
FF2 – 5592 – 00P	450 – 2
FF2 – 5594 – 01P	105 – 4
FF2 – 5595 – 00P	102 – 26
FF2 – 5596 – 00P	102 – 29
FF2 – 5597 – 00P	102 – 18
FF2 – 5599 – 00P	102 – 14
FF2 – 5600 – 00P	104 – 13
FF2 – 5601 – 00P	220 – 4
FF2 – 5602 – 01P	220 – 13
FF2 – 5603 – 00P	110 – 1
FF2 – 5605 – 00P	103 – 29
FF2 – 5607 – 01P	101 – 21
FF2 – 5619 – 00P	325 – 1
FF2 – 5620 – 00P	300 – 13
FF2 – 5621 – 00P	300 – 6
FF2 – 5622 – 00P	300 – 4
FF2 – 5623 – 00P	315 – 7
FF2 – 6700 – 00P	325 – 9
FF2 – 6701 – 00P	105 – 6
FF2 – 6702 – 00P	325 – 11
FF2 – 6703 – 00P	104 – 3
FF2 – 6704 – 00P	102 – 30
FF2 – 6705 – 01P	100 – 4
FF2 – 7417 – 00P	103 – 22
FF2 – 7418 – 000	103 – 1
FF2 – 7419 – 01P	105 – 5
FF2 – 7422 – 00P	351 – 1
FF9 – 0987 – 000	640 – 36
FF9 – 0972 – 000	810 – 80
FG1 – 7381 – 130	640 –
FG1 – 7396 – 280	810 –
FG1 – 7397 – 280	810 –
FG1 – 7414 – 110	980 –
FG2 – 1302 – 000	970 –
FG2 – 1332 – 000	160 –
FG2 – 1970 – 000	915 – 4
FG2 – 2154 – 000	914 – 4
FG2 – 2970 – 01P	130 –
FG2 – 2971 – 01P	450 –
FG2 – 2973 – 00P	320 –
FG2 – 2974 – 00P	103 – 6
FG2 – 2975 – 00P	103 – 4
FG2 – 2978 – 01P	350 –
FG2 – 2984 – 01P	250 –
FG2 – 2986 – 01P	220 –
FG2 – 2987 – 01P	325 –
FG2 – 2988 – 00P	103 – 5
FG2 – 2989 – 01P	315 –
FG2 – 2997 – 00P	104 – 1
FG2 – 2998 – 00P	104 – 1
FG2 – 3004 – 00P	110 –
FG2 – 3005 – 00P	110 –
FG2 – 3008 – 01P	930 –
FG2 – 3019 – 00P	351 –
FG2 – 3020 – 00P	580 –
FG2 – 3024 – 01P	190 –
FG2 – 4048 – 00P	450 – 11
FG2 – 4181 – 00P	100 – 13
FG2 – 4747 – 01P	960 –
FG9 – 3060 – 000	400 – 1
FH0 – 0051 – 00P	450 – 14
FH0 – 0054 – 00P	450 – 16
FH0 – 0055 – 00P	102 – 11
	210 – 24
FH0 – 0056 – 00P	190 – 2
FH0 – 0058 – 00P	102 – 13
FH0 – 0061 – 00P	110 – 2
FH0 – 0062 – 00P	110 – 6
FH0 – 0064 – 00P	110 – 7
FH0 – 0065 – 01P	220 – 11
FH0 – 0068 – 00P	101 – 12
FH0 – 0089 – 00P	104 – 14
FH0 – 0090 – 00P	104 – 6
FH0 – 0091 – 00P	104 – 6
FH0 – 0092 – 00P	103 – 28

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PART NUMBER	FIGURE & KEY NO.
FH0 – 0093 – 00P	104 – 4
FH0 – 0096 – 00P	103 – 3
FH2 – 5043 – 000	110 – 4
FH2 – 5298 – 000	400 – 27
FH2 – 5703 – 000	914 – 6
FH2 – 9039 – 030	350 – 24
FH3 – 0239 – 000	980 – T 2
FH3 – 0512 – 000	980 – T 3
FH3 – 0629 – 000	980 – T 1
FH3 – 2127 – 000	914 – 7
FH3 – 2235 – 000	915 – 7
FH3 – 8017 – 000	980 – T 4
FH4 – 5087 – 000	980 – Q 4
FH4 – 5440 – 000	980 – Q 1
FH4 – 9053 – 000	980 – R 5
FH7 – 1529 – 000	350 – 23
FH7 – 3114 – 000	400 – 26
FH7 – 3116 – 000	450 – 11A
FH7 – 4239 – 000	810 – 78
FH7 – 4240 – 000	810 – 78
FH7 – 5141 – 000	104 – 8
FH7 – 5142 – 000	220 – 12
FH7 – 5353 – 010	103 – 30
FH7 – 7083 – 000	810 – 78
FH7 – 7087 – 020	810 – 79
FH7 – 7127 – 000	810 – 77
FN1 – 4212 – 000	400 – 23
FN1 – 4213 – 000	401 – 7
FN1 – 4214 – 000	210 – 27
FN1 – 4215 – 000	210 – 28
FN1 – 4216 – 000	210 – 40
FS1 – 0036 – 00P	250 – 8
FS1 – 0037 – 00P	250 – 9
FS1 – 0884 – 000	810 – 60
FS1 – 1189 – 000	250 – 4
	350 – 18
FS1 – 1202 – 000	103 – 20
	350 – 22
FS1 – 1205 – 000	315 – 12
	810 – 64
FS1 – 1240 – 000	810 – 61
FS1 – 1402 – 000	103 – 25
FS1 – 1411 – 000	103 – 34
	320 – 6
FS1 – 1594 – 000	640 – 20
FS1 – 1595 – 000	103 – 24
FS1 – 1596 – 000	810 – 58
FS1 – 1597 – 000	810 – 59
FS1 – 1598 – 000	640 – 33
FS1 – 3293 – 000	250 – 5
FS1 – 9003 – 000	100 – 12
FS1 – 9005 – 000	810 – 63
FS1 – 9006 – 000	210 – 41
FS1 – 9073 – 000	220 – 5
FS1 – 9120 – 000	810 – 62
FS1 – 9169 – 000	102 – 32
FS2 – 0122 – 000	103 – 4A
FS2 – 0866 – 000	210 – 26
FS2 – 0867 – 000	220 – 6
FS2 – 0868 – 000	220 – 7
FS2 – 0869 – 000	220 – 8
FS2 – 0870 – 000	640 – 15
FS2 – 0871 – 000	640 – 16
FS2 – 0872 – 020	640 – 17
FS2 – 0873 – 000	640 – 18
FS2 – 0874 – 000	640 – 19
FS2 – 0878 – 000	250 – 7
FS2 – 0881 – 020	250 – 10
FS2 – 0887 – 000	350 – 19
FS2 – 0888 – 000	810 – 44
FS2 – 0890 – 020	810 – 46
FS2 – 0891 – 020	810 – 45
FS2 – 0892 – 000	810 – 47
FS2 – 0893 – 000	810 – 49
FS2 – 0894 – 000	810 – 48
FS2 – 0895 – 000	810 – 50
FS2 – 2161 – 000	810 – 57
FS2 – 2765 – 000	450 – 5
FS2 – 2766 – 000	220 – 9
FS2 – 2767 – 000	220 – 10
FS2 – 2768 – 000	102 – 7
FS2 – 2769 – 000	980 – 8
FS2 – 2770 – 000	250 – 6
FS2 – 2773 – 000	350 – 21
FS2 – 2774 – 000	810 – 51

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FS2 – 2775 – 000	810 – 52
FS2 – 2776 – 000	810 – 53
FS2 – 2777 – 000	810 – 54
FS2 – 2778 – 000	810 – 55
FS2 – 2781 – 000	560 – 11
FS2 – 2782 – 000	350 – 20
FS2 – 2783 – 000	103 – 26
FS2 – 2785 – 000	300 – 9
FS2 – 2788 – 000	400 – 21
FS2 – 8612 – 000	980 – 10
FS2 – 8613 – 000	980 – 10
FS2 – 9373 – 00P	104 – 3A
FS2 – 9374 – 00P	103 – 17
FS3 – 2780 – 000	810 – 56
FS3 – 8377 – 000	101 – 21A
	104 – 20
FS4 – 0033 – 00P	104 – 10
FS4 – 0034 – 00P	104 – 12
FS4 – 0035 – 00P	104 – 11
FS4 – 2030 – 00P	450 – 15
FS4 – 2031 – 00P	325 – 18
FS4 – 2032 – 00P	325 – 17
FS4 – 2033 – 00P	325 – 19
FS4 – 2034 – 00P	105 – 8
FS4 – 2035 – 00P	105 – 7
FS4 – 2037 – 00P	101 – 6
FS4 – 2038 – 00P	103 – 15
FS4 – 2039 – 00P	103 – 14
FS4 – 8106 – 000	640 – 42
FS4 – 8107 – 000	400 – 6
FS4 – 8120 – 000	300 – 4A
FS5 – 9005 – 000	400 – 22
FS8 – 8185 – 000	100 – 11
FS8 – 8189 – 000	100 – 15B
FY3 – 0040 – 000	560 – 1
VC1 – 2351 – 106	970 – C701
	970 – C702
VC4 – 4504 – 102	980 – C 13
	980 – C 22
	980 – C 23
VC5 – 4530 – 103	980 – C 26
VC5 – 4530 – 473	980 – C 18
VC5 – 5760 – 476	980 – C 17
VC5 – 7010 – 104	980 – C 14
	980 – C 15
	980 – C 19
	980 – C 20
	980 – C 21
	980 – C 24
	980 – C 25
	980 – C 27
VC5 – 8120 – 471	980 – C 2
VC8 – 0770 – 472	980 – C 11
	980 – C 12
VC8 – 1000 – 333	980 – C 16
VC8 – 3760 – 336	980 – C 1
VC8 – 3760 – 476	980 – C 10
VC9 – 1425 – 000	970 – C703
	970 – C704
VC9 – 1470 – 000	980 – C 3
	980 – C 4
	980 – C 5
	980 – C 6
	980 – C 7
	980 – C 8
VR1 – 1141 – 103	980 – R 4
	980 – R 28
	980 – R 35
	980 – R 44
	980 – R 45
VR1 – 1141 – 104	980 – R 2
	980 – R 36
	980 – R 37
	980 – R 38
VR1 – 1141 – 202	980 – R 42
	980 – R 46
VR1 – 1141 – 203	980 – R 33
	980 – R 34
	980 – R 39
VR1 – 1141 – 220	980 – R 15
VR1 – 1141 – 392	980 – R 13
VR1 – 1141 – 470	980 – R 7
	980 – R 40
VR1 – 1141 – 471	980 – R 9
	980 – R 14

PART NUMBER	FIGURE & KEY NO.
VR1 – 1141 – 472	980 – R 32
	980 – R 41
VR1 – 1141 – 479	980 – R 1
VR1 – 1141 – 514	980 – R 19
	980 – R 20
	980 – R 21
	980 – R 22
VR1 – 1141 – 515	980 – R 3
VR1 – 1141 – 752	980 – R 43
VR1 – 1141 – 914	980 – R 12
VR5 – 2511 – 004	980 – R 10
	980 – R 11
VR5 – 2512 – 052	980 – R 29
VR5 – 2512 – 153	980 – R 26
VR5 – 2512 – 612	980 – R 30
VR5 – 2513 – 013	980 – R 31
VR5 – 2513 – 324	980 – R 23
	980 – R 24
	980 – R 25
VR5 – 2517 – 322	980 – R 27
VR5 – 2519 – 783	980 – R 47
VR5 – 2650 – 103	980 – R 18
VR5 – 2650 – 334	980 – R 17
VR5 – 6371 – 004	970 – R701
VR5 – 6372 – 702	970 – R703
VR5 – 6375 – 491	970 – R702
VR5 – 6840 – 204	980 – VR 1
VR5 – 6870 – 470	980 – R 8
VR7 – 1710 – 229	980 – R 16
VS1 – 0066 – 003	810 – 80A
VS1 – 0440 – 003	810 – 80B
VT2 – 0001 – 004	104 – 15
	915 – 5
	960 – 2
VT2 – 0001 – 008	104 – 16
	930 – 4
VT2 – 0002 – 008	930 – 3
VT2 – 0023 – 008	914 – 5
WA1 – 0074 – 000	980 – ZD 1
	980 – ZD 2
WA1 – 0178 – 000	980 – D 7
	980 – D 10
WA1 – 0209 – 000	980 – ZD 3
WA1 – 0308 – 000	980 – D 11
WA1 – 0398 – 000	980 – D 1
	980 – D 2
	980 – D 3
	980 – D 4
	980 – D 5
	980 – D 6
	980 – D 8
WA1 – 0887 – 000	970 – D701
	970 – D702
WA2 – 0124 – 000	980 – Q 6
WA2 – 0135 – 000	980 – Q 7
WA2 – 0831 – 000	980 – Q 2
WA2 – 0957 – 000	980 – Q 5
WA4 – 0225 – 000	980 – Q 3
WA4 – 0367 – 000	970 – Q701
WA8 – 0166 – 000	980 – C 9
WC2 – 0137 – 000	101 – 7
WC4 – 0081 – 000	102 – 36
WD3 – 0125 – 000	110 – 5
WG3 – 0055 – 000	970 – Q702
WP1 – 0019 – 000	101 – 16
WS3 – 0586 – 000	970 – J701
WT2 – 0030 – 000	220 – 14
	350 – 28
	640 – 22
WT2 – 0110 – 000	104 – 21
	110 – 10
	250 – 17
WT2 – 0178 – 000	110 – 8
WT2 – 0179 – 000	104 – 19
	105 – 9
WT2 – 0241 – 000	960 – 8
WT2 – 0248 – 000	220 – 2
WT2 – 0295 – 000	101 – 9
WT2 – 0296 – 000	400 – 28
	915 – 6
WT2 – 0317 – 000	250 – 16
WT2 – 0434 – 000	102 – 37
	250 – 15
WT2 – 0435 – 000	351 – 8
X31 – 6240 – 880	210 – 32

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
X31 – 6241 – 080	400 – 25				
	401 – 11				
X65 – 5032 – 000	980 – D 9				
	980 – D 12				
	980 – D 13				
X66 – 6646 – 000	101 – 19				
XA9 – 0134 – 000	350 – 30				
XA9 – 0159 – 000	580 – 13				
XA9 – 0192 – 000	350 – 29				
XB1 – 1301 – 203	980 – 9				
XD1 – 1108 – 231	810 – 24				
XD1 – 1109 – 721	640 – 41				
XD2 – 1200 – 242	640 – 37				
XD2 – 2300 – 402	640 – 27D				
XF9 – 0210 – 000	250 – 11				
XG9 – 0089 – 000	401 – 10				
XG9 – 0172 – 000	810 – 70				
XG9 – 0177 – 000	640 – 21				
XZ9 – 0251 – 000	101 – 13				

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